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No Further Cut in Newsprint is Impending

Canadian Wartime Prices and Trade Board Denies Reports of Curtailment of Deliveries to United States on July 1—Pulpwood Supply Situation Materially Improved—Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 29, 1943.—For the time being the crisis in respect to the supply of newsprint is past. This has been made clear by an announcement by officials of the Wartime Price and Trade Board denying reports that deliveries of newsprint to the United States will be further curtailed on July 1st. It is admitted that a month ago the situation was such that a further rationing of newsprint seemed inevitable at an early date. Since then, however, officials state, the pulpwood situation has improved materially. Not only are settlers cutting more pulp, but additional supplies of seasonal labor have also been secured by newsprint companies for their woods operations.

"The crisis seems past and there is no cut in deliveries in prospect for the foreseeable future—certainly not for July 1," an official of the board stated.

Arthur MacNamara, director of National Selective Service has denied that forced labor crews of German war prisoners and conscientious objectors were being used to cut wood by Ontario paper companies, but admitted some Japanese were employed in timber operations.

His denial followed a statement in Philadelphia by Matt Sullivan, president of the International Association, who said forced labor was being used in Ontario forests and that one Ontario paper company was using crews consisting of German and Japanese prisoners and conscientious objectors.

"No Ontario company or private interest has been supplied with the labor of men under detention," MacNamara said, pointing out that this automatically ruled out the employment of German war prisoners. MacNamara also explained that no conscientious objectors "have been assigned to a commercial concern to work out alternative service." They are employed in Government forestry and road work, he said.

Criticism of Newsprint Cut

In the House of Commons at Ottawa, Lionel Bertrand, member for Terrebonne, and president of the Rural Press Association of Canada, has protested against the rationing of newsprint.

"Should the war afford a pretext for rationing one of the most important war industries—public information?" he asked.

"Should we not rather take advantage of the war to reduce the enormous and useless waste of paper which occurs in government offices, and to cancel for the duration a series of publications which are not read and which very often go straight to the furnace and not to the salvage committee?"

He also protested against the ban on advertisements of alcoholic liquors which he said had put many weeklies, particularly in British Columbia and Quebec, in "a very bad predicament."

Meanwhile American publications advertising liquors circulated freely in Canada, boosting brands made both in Canada and the United States. If the ban was because the advertisements incited people to drink its violation should not be permitted in this indirect manner.

Newspapers, he added were the heavy artillery of public information and should be encouraged by the Government in carrying out their mission to the public.

E. P. Ruf To Represent Box Industry

[FROM OUR REGULAR CORRESPONDENT]

FORT WAYNE, Ind., March 29, 1943—Ermin P. Ruf, president of the Wayne Paper Box and Printing Corporation, has been appointed by the National Folding Box Association, at the request of the Containers Division of the WPB to represent the industry in Washington as a dollar-a-year man.

In view of the emergency, Mr. Ruf stated here he will accept the appointment. Washington authorities have notified him to report in the national capital at once and he will leave here this week. He will assist the WPB and the folding and setup paper container industry to regulate further the consumption of paper container board.

During his absence, A. G. Burry, former president and now chairman of the board of directors of the corporation, again will assume the responsibilities of management. He will be assisted by Ralph Burry, vice president and treasurer.

News of the Wisconsin Paper Industry

Kimberly-Clark Corp. Reduces Absenteeism in Lakeview Mill—Assistant U. S. Attorney General Addresses Safety School—Plan to Check Floods in Wisconsin Valley — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., March 29, 1943—By appealing to a competitive spirit, Kimberly-Clark Corporation, Neenah, Wis., has reduced absenteeism at its Lakeview mill 22 per cent. A "conservation of manpower" contest was conducted among all departments with the aim of cutting down accidents and sickness as causes for lost time.

Response to the drive has been enthusiastic, and five sections made an improvement of 100 per cent in their records to tie for top honors. All other sections showed some improvement.

One of the posters drawn for the campaign by Harvey Damsheuser and Robert Birling and displayed in the finishing materials section was submitted to the National Safety Council, and was selected as one of a group to be circulated nationally.

Absenteeism normally 1½ per cent before the war was becoming steadily higher until last fall, when it was 4½ per cent. The current rate is 3½ per cent. Doubt as to the validity of excuses was shown by the fact that one-day absences were most frequent on Mondays and Saturdays, and that the incidence was heavy during the fine summer weather.

Most causes of absenteeism, in the opinion of the mill management, are (1) Employees feel more independent because of the abundance of jobs. (2) Fatigue has increased because of longer hours of work. (3) Excuses of sickness cannot properly be followed up. (4) Transportation has become a problem. (5) Married women hold more of the jobs and they have domestic problems.

Calls Accidents "Seventh Column"

Accidents were referred to as the "seventh column" by William Saltiel of Chicago, assistant to the attorney general of the United States, in his address at the closing session of the safety school of Neenah and Menasha, Wis., Tuesday evening, March 23, at the Menasha high school. Charles Abel of the Kimberly-Clark Corporation served as chairman.

Thus named, he said, accidents cause much loss to the war effort because of carelessness and lack of knowledge of how to act in shop and home. Loss of a division in a battle receives headlines but people equal to two divisions are lost each year by carelessness which could be averted. In addition, 200 million men-days are lost annually without any consideration of the humanitarian aspects, the pain and suffering to the individual and his family.

"Here is an adjunct of the war effort," Mr. Saltiel said. "Not everyone can fight but the man at the lathe can be a soldier as well by practicing safety."

The speaker dealt extensively with the war situation, giving observations gained in his extensive travels in Europe, and paid high tribute to American industry and the American workers who rallied to the fight to write a fine chapter in history.

A quiz contest was conducted by Francis J. Rooney, general chairman of the safety school committee, in advance of the address. Portable microphones were passed through the audience and those who answered safety questions correctly were given war stamps as prizes. The Menasha high school band furnished a concert.

Preparation Made To Check Floods

In preparation for the spring breakup and increased flow of the Wisconsin River, the Wisconsin Valley Improvement Company, Wausau, Wis., has drained its entire reservoir system down to 7.65% of its total storage capacity. Last week the storage was down to 1,282,000,000 cubic feet as compared to a storage of 4,302,000,000 a year ago, when the land was almost barren of snow. The Big Eau Pleine River reservoir now holds only 25,000,000 cubic feet and in another week will be down to its minimum legal level.

A checkup in Oneida County, where the Rainbow reservoir is located, shows that the snow course averaged 26.9 inches, with .9 of an inch of precipitation since. The moisture content is estimated at 7.33 inches, a quantity of which will seep away because of the low level of ground wells. Mills are maintaining their mill ponds at normal levels or less.

With plenty of reservoir capacity available and ample water to fill them, a violent spring flow will be held back, preventing flooding and possible impairment of mill operations.

Badger Mills To Supervise Recreation

Supervised recreation is being provided for the spring and summer by the Badger Paper Mills, Inc., Peshtigo, Wis., as a community venture. Playgrounds will be equipped and athletic equipment will be supplied. The program will be planned for children's activities in the afternoon, and adult play evenings.

Men called into the armed forces from Badger mills are being replaced with women, ten of whom are now engaged in men's jobs.

Increased Unemployment Payments Offered

Both industrialists and labor representatives expressed unanimous approval in hearings conducted at Madison, Wis., last week by the finance committee of the Wisconsin Legislature on a bill providing increased contributions from employers to assure the solvency of the state unemployment compensation funds when the post-war drain begins.

The bill provides that each employer will contribute an extra one-half per cent of payroll as a special post-war reserve. There would also be a schedule of war-risk applicable to employers who have expanded 50 per cent or more above their 1940 payrolls. The top rate would be five per cent but the increased cost would be measured by the employer's degree of expansion and the current level of his reserve account.

Beginning in 1944 the maximum weekly benefits that could be drawn by a worker who is laid off would be raised from $17 to $20 to compensate for higher living costs.

Wisconsin employers now contribute according to their experience in maintaining steady employment. The rate goes up for those with the least favorable rating. Some of the paper mills have built up their reserves to the adequacy required and make no contributions.

An amendment to the Wisconsin budget bill has been drafted which will add $90,000 to the biennial appropriation for forest crop aids. The allotment for this purpose would be raised from $290,000 to $380,000. This increase will permit the payment of ten cents per acre to towns, counties and school districts which have set aside lands for reforestation. Recent payments have averaged 7.3 cents per acre.

Nekoosa-Edwards Engages Personnel Head

William J. Melville has been engaged by the Nekoosa-Edwards Paper Company, Port Edwards, Wis., as personnel director in charge of the department of industrial relations. He joined the organization March 1, coming from Eau Claire, Wis., where he was an industrial, health and safety engineer for the Employers Mutuals for seven years. He previously was employed in industrial relations for 15 years with the Northern States Power Company. Mr. Melville spoke at last week's meeting of the Rotary club at Wisconsin Rapids, Wis., on safety practices in industry and in the home.

Smith Papers Stockpile Flax Straw

MADISON, S. D., March 15, 1943—A business enterprise that has potentialities of becoming a sizeable industry in this community has been launched by Smith Paper, Inc., of Redlake Falls, Minn. It is the purchasing and stockpiling of flax straw in Madison to be used in the manufacture of papers.

E. T. Hill, manager of the company's fiber division, was in Madison recently lining up a central receiving point where farmers may bring in their loose flax straw for which they will be paid $5 per ton. The company started buying straw recently with Harry Beadles in charge.

The flax straw will eventually be baled or cleaned here and shipped in carload lots to the main processing mill at Redlake Falls, where the firm employs about 80 people. After processing, it is shipped to the paper mills in Lee, Mass., where it is used in the making of cigarette papers.

Thus far, Madison is the only storage yard opened up by the company in South Dakota, although the firm has been purchasing and baling flax straw on the farms of eastern South Dakota for the last few years.

Mr. Hill stated that Madison was chosen because of its favorable location in the flax-growing section of South Dakota and because considerable flax is being grown in this immediate locality.

H. D. Cavin Made Lt. Commander

Harold D. Cavin has been commissioned Lieutenant Commander in the Civil Engineering Corps USNR. Mr. Cavin has been granted a leave of absence from his duties as resident engineer for the Puget Sound Pulp and Timber Company in Bellingham, Wash., and will report to the Naval Officers Training Camp Peary at Williamsburg, Va., where will undergo training with the Naval Construction Battalions.

WPB Limits Use of Waste Manila Rope

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 29, 1943—In order to assure sufficient supplies of waste manila rope for essential paper products, use of this material after March 19 has been restricted by the WPB, through issuance of General Conservation Order M-294.

The order provides for the use of waste manila rope fibre only in manufacture of new rope, insulating papers, gasket base papers, artificial leather papers and certain other grades of essential paper which cannot be manufactured satisfactorily from other fibres.

The use of waste manila fibre in the manufacture of flour and cereal product paper sacks of twenty-five (25) pounds capacity or more will be permitted until June 1, 1943, in order to enable the manufacturers of this type of sack to develop the use of satisfactory substitute materials.

The supply of new manila fibre has been cut off from this country and consequently the supply of waste manila rope is steadily declining.

Order M-294 was designed to insure a supply of waste manila rope sufficient to assure production for about two years of the most highly essential products which cannot be produced satisfactorily from other fibrous materials.

After March 19, the use of waste manila rope fibre is permitted only for manufacturing new rope and the following specific paper products: Insulating papers for communication wiring and cables, and electrical wiring and cables; paper for the manufacture of gaskets for mechanical equipment; artificial leather base papers used in making artificial leather for consumption by shoe manufacturers, and certain tag papers for the Armed Forces.

In addition, Order M-294 permits the use of waste manila rope in the manufacture of any grade or type of paper which cannot be satisfactorily produced from other fibres provided that the use of waste manila rope in the manufacture of such paper is specifically approved by the War Production Board; for delivery to the Armed Forces or for use in the manufacture of material or equipment for delivery to the Armed Forces.

Shippers Paper Committee Reports

BOSTON, Mass., March 29, 1943—The report of the paper committee, A. A. Raphael, chairman, and N. F. Bartlett, vice-chairman, given at the recent annual meeting of the New England Shippers Advisory Board at the Hotel Statler, is as follows:

"Referring to your letter of February 16, requesting a forecast of anticipated carloadings during the second and third quarters of 1943 as compared with last year.

"Based upon replies received from my inquiry, dated February 18, addressed to members of the Paper Committee, it is my best judgment that there will be a decrease of 20 per cent in the carloadings for the second quarter of 1943 as compared with the second quarter of 1942.

"As to the third quarter, the replies indicate a wide variety of views which makes it exceeding difficult for me to attempt to strike an average. About all I can do is to make an informed guess, namely, that there will be a decrease of 10 per cent in the carloadings as compared with the third quarter of 1942."

OPA Issues New Price on Coarse Papers

Pricing Level For Distributors Simplified But Unchanged in New Regulation—Manufacturers and Retailers Not Affected—Table Explains the Value Brackets of Manufacturers' Pricing Unit

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 31, 1943—New ceilings for distributors of several hundred coarse paper products were established by the Office of Price Administration to simplify pricing procedure.

The new regulation, while not changing the general level of maximum prices in effect under the General Maximum Price Regulation, gives the distributors an easily applied table of mark-ups by which they may determine their ceilings on all sales of the products covered. Under the General Maximum Price Regulation using March, 1942, as the price base, thousands of individual ceilings were established throughout the industry with many maximum prices for the same item resulting in numerous difficuties and unavoidable inequities characteristic of a freezing formula. The new regulation is designed to eliminate these difficulties and inequities.

Approximately 2100 paper merchants are affected by the new regulation, Maximum Price Regulation 349 (Distributors' Maximum Prices for Certain Coarse Paper Products), effective May 21. The total sales volume of the coarse paper distributing trade exceeded $321,000,000 in 1942.

Producers and Retailers Unaffected

Ceilings of manufacturers and retailers on these products are not affected. They remain under the General Maximum Price Regulation or other specific regulations.

Among the products covered are folding and set-up boxes, drinking cups, egg cartons, facial tissue, napkins, paper food dishes, shirtboards, spoons, and straws.

Under this regulation, distributors need only refer to the new table to determine their maximum prices on each of the multitiude of products covered. The regulation levels out the peaks and troughs, and removes price inequities. The consumer likewise benefits from the changes, which yields easily calculable and equitable prices both to him and the distributor.

The single mark-up table was compiled after intensive study of trade practices, costs, and prices of a number of years, detailed examination of representative distributor operations, and numerous meetings with a representative informal advisory group for the industry.

This table sets up a series of value brackets into which manufacturers' maximum prices per unit fall. Merchants' mark-ups are then listed for each of the quantity columns within each value bracket.

For example, a distributor sells 1200 pounds of wrapping paper, the manufacturer's price of which is $6.00 per hundredweight. The pricing unit of the commodity is a hundredweight. The cost per unit is between $5.00 and $7.50. By referring to the table, the distributor sees that 12 units of a type costing between $5.00 and $7.50 per unit take a mark-up of $1.60 per unit. By adding $1.60 to $6.00 the maximum selling price of the distributor is $7.60 per hundredweight or $91.20 for the entire sale.

Value brackets—Manufacturers' maximum price per pricing unit	Quantity columns—Number of pricing units							
	1	2 to less than 5	5 to less than 10	10 to less than 25	25 to less than 100	100 to less than 500	500 to less than 1,000	1,000 and over
Less than $2.00	$1.05	$ .90	$ .65	$ .45	$ .40	$ .35	$ .26	*$ .22
$2.00 to less than $3.00	1.75	1.25	.85	.70	.65	.50	*.44	*.38
$3.00 to less than $4.00	2.45	1.50	1.05	.95	.85	.70	*.61	(*)
$4.00 to less than $5.00	2.95	1.80	1.35	1.20	1.10	.85	*.79	(*)
$5.00 to less than $7.50	3.00	2.05	1.90	1.60	1.25	*1.10	(*)	(*)
$7.50 to less than $10.00	3.70	2.85	2.20	2.15	1.75	*1.50	(*)	(*)
$10.00 to less than $12.50	3.90	3.10	2.80	2.55	2.00	*1.70	(*)	(*)
$12.50 to less than $15.00	4.45	3.80	3.45	3.10	2.40	*2.05	(*)	(*)
$15.00 to less than $20.00	5.70	4.80	4.35	3.95	3.05	*2.60	(*)	(*)
$20.00 and over [1]	27½%	25%	22½%	20%	17½%	*12½%	7½%	7½%

* Where the total manufacturer's maximum price for a sale of one class of commodity amounts to $2500 or more, the distributor may in no event add an amount in excess of 7½% of such manufacturer's maximum price.

[1] Where the manufacturer's maximum price per pricing unit is $20.00 or more, the distributor shall determine his maximum price by adding the appropriate and applicable percentage set forth above.

In the construction of the mark-up table, application was made of the formulae under the dual cost factor system (the principle of which have been widely employed by the trade since 1920 upon its adoption by the National Paper Trade Association and which were formally codified under the National Industry Recovery Act), subject to minor adjustments necessitated by considerations of actual practice.

These results were further checked against the National Paper Trade Association dual cost accounting system for coarse papers and against actual operations of several representative firms. In all instances, the returns calculated under the regulation's mark-ups approximate closely those actually realized under normal market conditions.

In those instances where more than one distributor handles a coarse paper product between manufacturer and consumer, the regulation provides that the consumer may be charged no more than the manufacturer's maximum price, plus an amount equivalent to a single application of the appropriate mark-up.

Special Provisions Explained

Dollar-and-cents mark-ups are used in lieu of percentages wherever feasible in the mark-up table because they make for simplicity in ceiling price determination and administration.

Customary discounts, differentials and allowances, excluding those given for quantities, must be continued by distributors not less favorable to the purchaser than those in effect March, 1942.

On amalgamated sales consisting of two or more types of one class of commodity, the distributor will

determine the manufacturer's maximum prices for one unit of each type and the dollar value bracket into which the cost of each type falls; also the total number of these units to be priced which comprise a given sale and the quantity column into which the sale falls; and then add the mark-ups thus derived to the manufacturer's maximum price per unit of each type.

Provision is made for the pricing of special commodities essential to the war effort, the cost of development of which exceeds the ceiling in the regulation. A price is permitted then to include the added actual cost of development until these costs have been amortized. Data has to be supplied OPA when approval of the ceiling is requested.

Newsprint, sanitary napkins, kraft wrapping papers and certain bags, certain tissues, and wax papers are not included in the above regulation.

Developes New Shipping Case

A newly developed carton to carry 100 pounds of its carton stitching wire was recently adopted by Acme Steel Company, Chicago. The new shipping case, constructed of double wall corrugated board, is the result of intensive research over a period of several years. This included drum tests and continual shipping under the most difficult conditions.

The container consists of four parts, all of which are designed for quick assembly. Tops and bottoms are purchased by Acme in the form of scored blanks which are composed and stitched as needed. Two taped "tubes" form a separator in the center of the carton. This type of separator was chosen since it divides the container contents into smaller units thus eliminating the possibility of exerting the total pressure on any one point within the carton.

To facilitate the removal of the stapling wire by the receiver, a ribbon is placed through the core of the last coil packed in each tube. The containers are sealed and reinforced with two ⅜-inch steel straps which are quickly applied to the carton by means of tensioning and sealing tools.

This new shipping pack has advantages for the receiver as well as the shipper. Upon receipt of his shipment, the purchaser merely snips the straps to remove the contents of the carton. Since the cover is easily removed and replaced, this new double wall fibre board shipping case serves as an excellent storage place for the unused portion of the wire.

Usually containers of Silverstitch Stapling Wire are shipped on skids. This at first seemed to present a problem in that it was thought fiber board cartons containing 100 pounds of steel wire would not permit this kind of shipping.

W. B. Morehouse Made Lieutenant

Walter B. Morehouse, manager of the Paper Specialties Division of National Oil Products Company has reported in Chicago for active duty as Lieutenant (j. g.) of American Volunteer Training, U. S. Naval Reserve. Now holding a private pilot's license, he will be given training as a flying instructor.

Lt. Morehouse has been active in the paper industry since his graduation in 1934 from the Pulp and Paper branch of New York State College of Forestry at Syracuse, N. Y. He was chief chemist of Container Corporation in Philadelphia before joining Nopco—where he is now on leave of absence.

Obituary

William F. Peace

William Francis Peace of New York office of Crocker, Burbank Papers, Inc., died March 18, from pneumonia.

Mr. Peace had been identified with the paper business since 1919, when, upon returning from service with the U. S. Army in France, he joined Louis Dejonge & Co., New York. He served first as a clerk in their Ritchburg mill division and later as a junior and a senior salesman.

Mr. Peace joined Clarke and Company in 1934 when that company, then exclusive sales agents for Crocker, Burbank & Co. Association, Fitchburg, Mass., took over the sale of the coated papers of Louis Dejonge Co., Fitchburg.

In 1938 the partnership of Clarke and Company was dissolved and Crocker, Burbank Papers Inc., succeeded to their business and he continued with the new company.

During World War I, Bill Peace volunteered at the age of eighteen for service with the 106th Infantry, 27th "New York's Own" Division. He served with this division throughout the war in charge of a machine gun crew, machine gun battalion. On the Hindenburg Line four of his crew of six were killed and he suffered wounds and mustard-gas poisoning.

He is survived by his widow, May E., and son, Thomas, eighteen, now in training with the Army. He was a brother of Thomas Peace, also well-known in graphic arts circles.

John J. Vaughn

John J. Vaughn, 56, Vice president of The Norwood Engineering Company, Florence, Mass., died suddenly at Northampton, Mass., on March 19.

Mr. Vaughn was well known throughout the industry, having been associated with water filtration for a great many years. During the past several years he had been head of the Filtration Department at Norwood, and he has done considerable mechanical and architectural designing in the water filtration field. He was also a past president of the Northampton Board of Water Commissioners.

Mr. Vaughn's active business career was spent with Norwood, having started with the company in 1906 as a blue print boy, and subsequently working up to assistant draftsman, draftsman, chief draftsman, and finally Vice President and head of the Filtration Department.

Funeral services and interment were at Northampton on March 22. He is survived by his wife, Mrs. Rose Vaughn, 49 Woodlawn Avenue, Northampton, a son, Bernard Vaughn, two daughters, Mrs. Louis Sampson and Mrs. Robert Olander, and a granddaughter, all of Northampton.

Howard Tayloe Made Captain

MEMPHIS, Tenn., March 31, 1943—Howard Tayloe, executive vice president of the Tayloe Paper Company, has been made a captain in the army.

He is now located at Patterson Field, Fairfield, Ohio, just outside of Dayton.

Demand and Costs Complicate Business

Chicago Reports OPA Price Level of March, 1942, is Becoming Increasingly Difficult Restriction as Costs Rise—Army Man Discusses Importance of Packaging in War Shipments—Other News

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., March 29, 1943—The Chicago paper market is finding the ever tightening situation more complex daily. All grades of paper are reported in extremely heavy demand and it is indicated by more than one top executive here that the situation is going to grow far worse before it gets better. Accentuating the trouble is the growing "squeeze" which is causing paper representatives to be more and more insistent with the OPA that rising labor and production costs are making the prices of March, 1942, more and more impossible. Increasing shortages in pulp have added to the gravity of the problem.

Book and cover papers stated that the week was "tops" as far as demand was concerned while sulphites reported order "back logs" increasing to alarming proportions. Ground woods found the pulp situation even more unsatisfactory with further curtailment expected to aggravate the problem. Newsprint markets were in the same position while krafts reported the peak of demand thus far. Waste papers found man power problems creating grave labor shortages which were materially affecting the available supply of waste paper for immediate use.

Importance of Packing Discussed

The importance of good paper and good packaging in war shipments was stressed last week by Major General C. P. Gross, chief of army transportation, who spoke before the Chicago Traffic Club on March 18. The occasion was the annual "perfect shipping" campaign to be conducted during April under the sponsorship of thirteen regional shippers advisory boards. General Gross stated that if "we do a better job in shipments for overseas destinations we will have perfect shipping at home" and added that if packing supervisors could see the amount of coopering and packing necessary at ports they would be more inclined to think of goods as intended for real war use instead of "just another domestic shipment." In telling of methods introduced to reduce loss of war goods and to conserve precious shipping space, the transportation chief praised dehydrated foods and fibreboard boxes impregnated to resist moisture and pressure.

Distributors Add New Lines

Among the new lines added in the Chicago market this week are Audubon D. E. from the Hurlbut Paper Company, now stocked by the Swigart Paper Company; Gilbert Paper Company's Radiance Bond, stocked by Berkshire Papers, Inc., and Finance Index, made by Rising and now included in the Zellerbach Paper Company lines here.

The Moser Paper Company has recently announced the addition of several lines as reported in the current catalog which brings the price list up to date. Included among the news items are White Star Tag, Johnsons Elastic Padding Compound and two duplicator bond lines, Plymouth and Economy. The catalog also reported Penn Ledger as a replacement for Mopaco Ledger and indicated that Crown Offset is now being carried in five colors and in white. The catalog consists of 178 pages of prices and descriptions.

Container Corp. Perfects Garbage Can

Container Corporation of America has perfected a garbage container made out of paper board which will be the answer to at least one problem on the "critical list." The garbage can is made from an asphalt treated paper board and is being made in Chicago by the Arvey Corporation. It is reported to have received ready acceptance, particularly by hard pressed hardware retailer dealers.

Eastern Corp. Issues Ration Card Holder

Colorful and timely is Eastern Corporation's latest effort to advertise Eastern products and at the same time put its distributors in good graces with the feminine contingent. The newest is a War Ration Book in patriotic colors, big enough to snugly hold the plentiful supply of ration books which may grow even more plentiful in the months to come. It's a complimentary distribution "for the family shopper to use"—and it looks as though it should be useful!

Salesmen Discuss "End Uses"

The western division of the Salesmen's Association of the Paper Industry spent the greater part of its Monday, March 15, meeting in a discussion of the essentiality of "end uses," reportedly becoming more and more convinced that this approach is going to be vitally necessary in face of government requirements and the pulp situation.

Clarifies Publication Paper Quotas

WASHINGTON, D. C., Mar. 31, 1943—Alternate provisions for determining paper quotas for publishers of magazines who use not more than 25 tons per calendar quarter, have been authorized by WPB in an amendment of General Limitation Order L-244, effective April 1. The amendment tends to clarify the order but does not further curtail the smaller publisher's quota.

The previous order, effective January 1, exempted from its restrictions any publisher using 25 tons or less of paper in any calendar quarter after that date. The amended order permits the smaller publisher to use, in any calendar quarter after March 31, the larger of the following amounts; (1) the amount he used in the corresponding calendar quarter of 1942 or (2) 25% of the amount he used during the year 1942, but in neither case more than 25 tons per quarter.

The amended order also allows any publisher to use in any calendar quarter such additional tonnage as he saved in the preceding quarter within the limitation of 25 tons for any calendar quarter.

Camas Has Gone to the War

Speaking recently on the occasion of a service pin presentation banquet of the Crown Zellerbach Corporation at Camas, Wash., William D. Welsh said:—

"Just eleven months ago I spoke to the graduating class of your paper school on how the war had unescapably come to Camas. Tonight I would like to point out to you briefly how Camas has gone to the war. Have you ever thought that the products and men who left this plant and this community for the duties of war are today planting the city limit signs of Camas, Wash., on all war fronts of the war—from the frozen Steppes of Russia and Alaska to the burning sands of Libya and the jungles of New Guinea? And that if we do our part here at home half so well as these human and product ambassadors are doing on the fighting fronts, then the day will not be far when these traveling city limit signs of Camas will be planted in the rubbled streets of a humbled Berlin and the burning streets of a conquered Tokyo? There may be those among you who feel that just because they are not actually pulling triggers that they are not in this war adequately. May I assure you that it would take all night to relate the many ways in which pulp and paper, and the war work being done in your machine shops, are making great contributions to victory.

Actually Building Cargo Ships

Would you believe that in the making of paper alone you are actually building cargo ships? Paper, in all of its uses, provides a lighter packaging material than other products. It permits more economical use of precious cargo space. And the space and weight saved through use of paper actually adds to the number of ships available to ourselves and our allies. May I be a little more elementary in the illustration. Pan American Airways has been doing an amazing job of carrying needed military foods, medicines and supplies across South America and over to the African continent for months at a saving of 500 pounds per plane by insisting that practically all cargo be packed in paper. And there were times when 500 pounds of vital plane or tank parts could well be credited with saving the day for the Allied cause.

Let me paint you another current picture. You doubtless have all thrilled at the accomplishment of building the new road to Alaska. You all realize that the distance is long and that trucks making this long trip with military supplies cannot carry any more deadweight than is absolutely necessary. Picture, if you can, a big truck arriving in White Horse every six to eight minutes of the day, transferring its cargo to a waiting plane enroute to an unnamed Russian war front. And picture, if you can, how constructively important your job becomes when you suddenly realize that because of it, hundreds of valuable tons of shipping are saved for planes and trucks because of the lighter paper packaging.

Paper May Determine Outcome of a Battle

Gentlemen and ladies—in the job you are doing here may well rest the outcome of a battle, the life of some American or Allied soldier. The sheet of paper which may seem monotonous and commonplace to you today, may tomorrow be off on a glorious adventure.

You can't fire a jumbo roll of paper out of the mouth of a machine gun or a cannon. It just can't be done. You can't make a machine gun part or emplacement out of paper. It just won't work. You can't make an airplane magneto or bombsight or other fitment out of paper. It just doesn't make sense. But when each transport plane flying to Africa or over the rim of the world to Russia carries 500 pounds more bullets, or machine gun replacements, or airplane fitments because they were packaged in some kind of paper instead of heavier materials, does it stretch your imagination too far to believe that paper made in this mill may have played a humble, yet important part, in saving Stalingrad?

If 500 more pounds of blood plasma can be flown across the seas in each airplane because of paper packaging, wouldn't you feel pretty good about your job and your product, especially if that 500 pounds of blood plasma helped to save the leg or the life of an American boy—or a Russian boy—or an English boy—maybe your boy or the neighbor boy who went to school with him in Camas or Washougal? There is nothing wildly imaginative about it. It all adds up.

Going to All the Battle Fronts of the World

Now do you see how the men and the products from this mill and this community are planting the city limit signs of Camas on all war fronts of the world?

The paper you make here is packaging blood plasma and medical supplies. It is packaging and protecting bombsights, compasses and other fitments for planes and ships. In at least one great Pacific coast airplane factory it is wrapping the wings and fuselages of great war planes before they are crated for shipments to some fighting front. Its treated tissues and waxed surfaces protect the freshness and vitamins of Northwest fruits and Southland citrus and provide sanitary wrappings for thousands of tons of dehydrated fruits and vegetables so necessary to feed the fighting forces and also keep our home front fit.

The ship rudder made in the machine shops in which you work may guide, unerringly, the tanker whose oil supplies arrive in time to save a sea battle. The crane you build here may be helping to lift the heel of Hitler and his satellites from the necks of captured peoples. The parts of a cargo winch made here may lift ashore precious cargo in far lands to supply your boy or the neighbor boy down the street. The paravane made here might be the means of preventing a mine from destroying an American ship on which some Camas boy may be sailing.

So you see, gentlemen and ladies here in the Camas mill, without fuss, feathers or band concerts, you are in this war up to your necks. You don't share in the glamour or glory of a ship launching. You don't have the opportunity to see a bottle of champagne smashed against the bow of a newly launched ship. But without the work you are doing here, some ship would never be launched and thus never reach some theatre of war in time to keep a battle from being lost.

We are doing practical things now to help them win a war. We must do practical things to help them make the peace and the future fruitful and secure.

Government Paper Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 31, 1943—The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 95,500 pounds of tan bristol board at 10.25 cents. Other paper awards recently made by the Printing Office include the following:

Walker Goulard Plehn Company will furnish 180,000 pounds of 25% rag, white mimeograph paper at 9.62 cents and the Stanford Paper Company will furnish 1,117 pounds of goldenrod coated book paper at 12.99 cents. Mathers Lamm Paper Company will furnish 15,000 pounds of marble grained lined board paper at 5.1 cents and the Marquette Paper Company will furnish 73,211 pounds of white sulphite writing paper at 7.50 cents. Barton, Duer & Koch Paper Company will furnish 676 pounds of 50% rag, yellow bond paper at $160.55.

The Marquette Paper Company will furnish 615,249 pounds of white supercalendered book paper at 7.05 cents also the Stanford Paper Company will furnish 45,600 pounds of machine finish book paper at 6.83 cents and 17,400 pounds of white machine finish book paper at 6.74 cents. Bermingham & Prosser Company will furnish 232,050 pounds of 25% rag, white ledger paper at 11.8 cents.

Byron Weston Company will furnish 11,025 pounds of 50% rag, white litho finish fluorescent chart paper at 40 cents and R. P. Andrews Paper Company will furnish 51,220 pounds of cream bristol board at 6.26 cents. Walker Goulard Plehn Company will furnish 84,170 pounds of 50% rag, yellow index paper at 10.73 cents and the Mudge Paper Company will furnish 17,240 pounds of 50% rag, fawn index paper at 13.21 cents and 86,200 pounds of blue index paper at 13.21 cents.

Paper Corporation of U. S. will furnish 17,336 pounds of 100% rag, white ledger paper at 20.39 cents. Walker Goulard Plehn Company will furnish 38,400 pounds of 25% rag, buff ledger paper at 13.48 cents and 160,000 pounds of 25%, pink bond paper at 14.42 cents. The Stanford Paper Company will furnish 21,075 pounds of 50% rag, white litho finish map paper at 13.5 cents; the Marquette Paper Company will furnish 12,500 pounds of 50% rag, pink manifod paper at 22.5 cents and Walker Goulard Plehn Company will furnish 102,400 pounds of 25% rag, white ledger paper at 12.23 cents.

The Paper Corporation of the U. S. will furnish 10,800 pounds of white supercalendered book paper at 7.53 cents and also 84,000 pounds of the same at 7.18 cents. Walker Goulard Plehn Company will furnish 21,504 pounds of 25% rag, buff ledger paper at 15.43 cents; 5,902 pounds of same, salmon at 17.83 cents; 5,900 pounds same, yellow at 17.83 cents; and 12,625 pounds same, pink at 14.43 cents.

Frank Parsons Paper Company will furnish 18,009 pounds of chemical white wood writing paper at 7.5 cents and 108,995 pounds of same at same price. Barton, Duer & Koch Paper Company will furnish 614,400 pounds of white chemical wood writing paper at 8.25 cents; D. L. Ward Company will furnish 307,200 pounds of the same at 8.34 cents and the R. P. Andrews Paper Company will furnish 307,300 pounds of same at 8.34 cents.

Walker Goulard Plehn Company will furnish 224,300 pounds of white chemical wood writing paper 40 x 52½ at 7.59 cents and 86,100 pounds of same 32 x 42 at the same price. The same firm will also furnish 8,678 pounds of yellow chemical wood bond paper at 10.74 cents. D. L. Ward & Co. will furnish 143,150 pounds of white chemical wood writing paper at 7.24 cents and 20,450 pounds same at 6.71 cents. Bulkley Dunton Company will furnish 118,400 pounds of 25% rag, white mimeograph paper at 9.37 cents and Walker Goulard Plehn Company will furnish 296,000 pounds of same at 9.59 cents.

The Cauthorne Paper Company will furnish 49,364 pounds of 25% rag, white bond paper at 11.9 cents and the Marquette Paper Company will furnish 592,100 pounds of white sulphite writing paper at 38 inches wide at 7.15 cents and 28 inches wide, same price. Allen, Lane & Scott will furnish 20,952 pounds of white chemical wood writing paper at $1,371.31.

Eastern Corp. will furnish 36,481 pounds of white chemical wood ledger paper at 7.91 cents and Stanford Paper Company will furnish 4,974 pounds of Maxopaque Engish finish paper at 11.05 cents and 44,284 pounds of Curtis opaque English finish at 8.90 cents. Marquette Paper Company will furnish 12,520 pounds of white chemical wood manifold paper at 10.75 cents; Frank Parsons Paper Company will furnish 96,000 pounds of white M.F. book paper at 6.93 cents and 10,667 pounds of same at 6.93 cents.

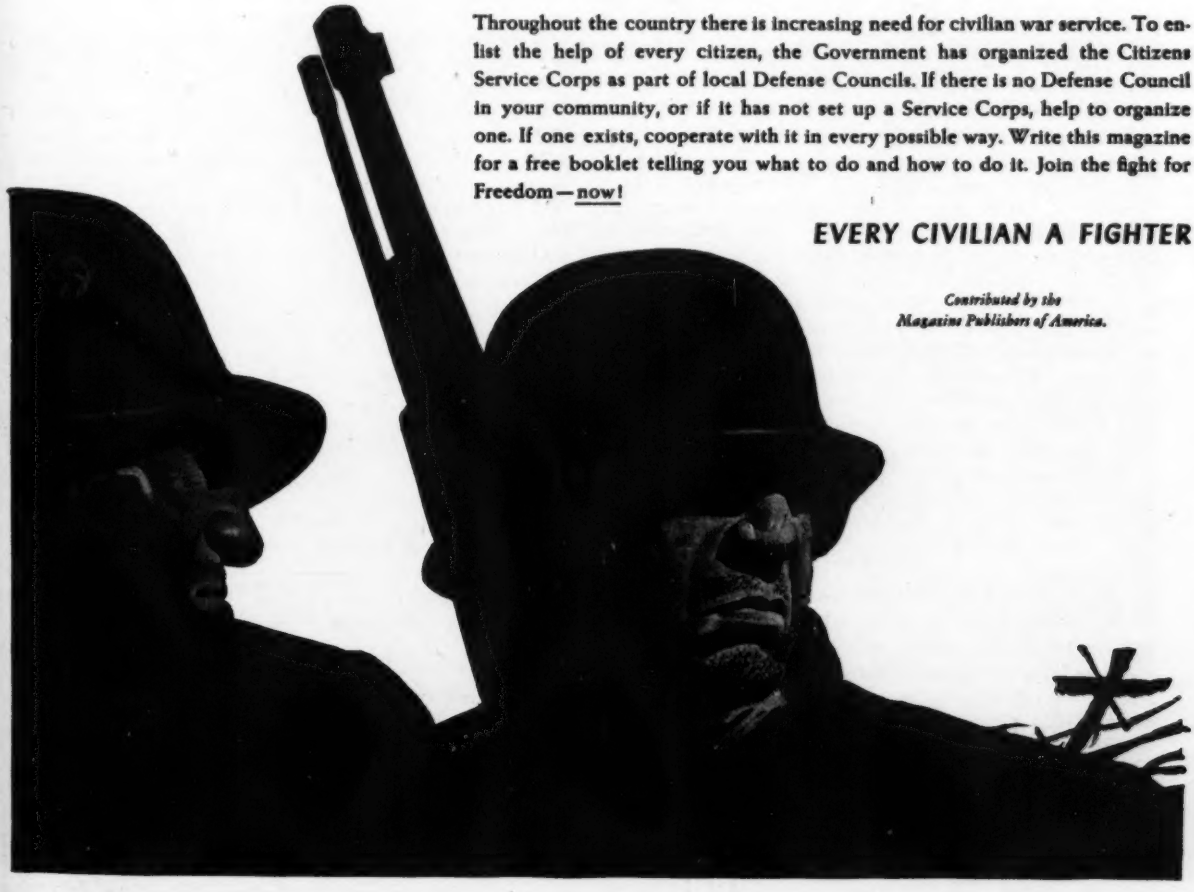
The Stanford Paper Company will furnish 337,912 pounds of white chemical wood writing paper at 6.75 cents and Walker Goulard Plehn Company will furnish 29,771 pounds of same at 6.97 cents and 70,195 pounds white sulphite writing paper at 6.97 cents. Marquette Paper Company will furnish 400,000 pounds of poster paper at $32,000.

Walker Goulard Plehn Company will furnish 50,000 pounds of light weight M.F. book paper at 7.98 cents and Paper Corp. of U. S. will furnish 100,000 pounds of supercalendered book paper at 6.94 cents. R. P. Andrews Paper Company will furnish 34,440 pounds of white offset book paper at 7.8 cents and D. L. Ward Paper Company will furnish 218,160 pounds of 50% rag, white ground wood writing paper at 5.5 cents. Walker Goulard Plehn Company will furnish 81,500 pounds of 25% rag bond paper; white at 12 cents; yellow at 12.8 cents; and the same company will also furnish 60,155 pounds of white M.F. printing paper at 8.75 cents.

Cauthorne Paper Company will furnish 70,800 pounds of 25% rag, white bond paper at 11.9 cents and Frank Parsons Paper Company will furnish 24,900 pounds of white offset book paper at 7.90 cents. Walker Goulard Plehn Company will furnish 57,600 pounds of coated book paper at 6.65 and the same firm will also furnish 68,400 pounds of pink chemical wood writing paper at 7.98 cents and also 113,400 pounds of same, yellow at 8.23 cents. The Mudge Paper Company will furnish 129,300 pounds of 50% rag, white index paper at 12.88 cents and

If they win ...only our dead are free

These are our enemies.
They have only one idea—to kill, and kill, and kill, until they conquer the world.
Then, by the whip, the sword and the gallows, they will rule.
No longer will you be free to speak or write your thoughts, to worship God in your own way.
Only our dead will be free. Only the host who will fall before the enemy will know peace.
Civilization will be set back a thousand years.
Make no mistake about it—you cannot think of this as other wars.
You cannot regard your foe this time simply as people with a wrong idea.
This time you win—or die. This time you get no second chance.
This time you free the world, or else you lose it.
Surely that is worth the best fight of your life
—worth anything that you can give or do.



Throughout the country there is increasing need for civilian war service. To enlist the help of every citizen, the Government has organized the Citizens Service Corps as part of local Defense Councils. If there is no Defense Council in your community, or if it has not set up a Service Corps, help to organize one. If one exists, cooperate with it in every possible way. Write this magazine for a free booklet telling you what to do and how to do it. Join the fight for Freedom—now!

EVERY CIVILIAN A FIGHTER

Contributed by the Magazine Publishers of America.

Wilcox-Walter-Furlong Company will furnish 33,000 pounds of white chemical wood index paper at 7.7 cents. Barton, Duer & Koch Paper Company will furnish 129,300 pounds of 50% rag, buff index paper at 12.45 cents and the Paper Corp. of U. S. will furnish 134,640 pounds of chemical wood white writing paper at 5.7 cents.

The Marquette Paper Company will furnish 500,000 pounds of supercalendered book paper at 7.05 cents and the same company will also furnish 600,000 pounds of the same at 7.05 cents. Walker Goulard Plehn Company will furnish 384,000 pounds of process coated book paper at 6.65 cents and the Cauthorne Paper Company will furnish 35,535 pounds of white chemical wood bond paper at 7.74 cents and 36,977 pounds of white chemical wood writing paper at 7.24 cents. D. L. Ward Paper Company will furnish 19,670 pounds of white chemical wood ledger paper at 7.48 cents.

New Line of Glass Tanks

The Pittsburgh Plate Glass Company announces a line of glass tanks for industrial or commercial applications requiring a non-corrosive, shock-resisting material. They use a minimum of critical materials and are not just glass lined, but are actually tanks made of glass, made by building up the required shape and size of heavy tempered glass plates. The result is a rigid, permanent, sturdy tank, free from maintenance or wear.

The new method of heat treating gives to the tank material a physical strength four to five times greater than ordinary glass. Furthermore, the glass has a high resistance to thermal shock. It will withstand continuous operating temperatures of 650° F. and an instantaneous thermal shock of 400 to 500°.

The joining problem is comparatively simple since the glass is made in large sheets; and on all tanks of medium size nothing but the corners are involved. All joints are accurately ground so that they resemble, in a sense, the ground stopper of a chemist's bottle. In addition, use is made of a joining material developed especially by the company's research laboratory for this purpose. The entire tank is usually surrounded by a wooden frame work filled with a compound. This frame serves both as insurance against leaks and as protection against severe physical blows.

Tanks of glass have already proved their ability to take it and continue to give service in one of the most severe of all tank applications—pickling tanks for steel and other metals. Their successful initiation here has caused a demand for them in other industries, such as the rubber, synthetic rubber, chemical, textile, paper, photographic, electroplating, — and many other fields.

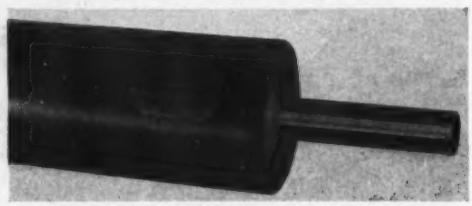
New All-Fiber Coffee Can

American Can Company, 230 Park avenue, New York, has developed a new all-fiber coffee can, to replace formerly used metal containers, and the new unit is being placed in regular commercial production at one of company plants. It is practically of same size as the vacuum-packed metal container, and is protectively lined; it has been designed with two closures, a shipping disc which is removed by the consumer, and a friction plug or replaceable cap to close the can when not in use.

New Plastic Covered Rolls

The illustration presented herewith represents one of the new Rodney Hunt Plastic Covered Rolls of "Shaf-tite" construction. This particular roll is about 5½ inches diameter with the No. 4203 plastic covering, and is said to offer a number of real practical advantages.

Basically, this is an all metal roll. The surface of the roll body has the plastic covering which provides



New Roll Provides Unusual Features

a hard smooth glass-like surface, which the manufacturer claims is unaffected by most acids and alkalies. It is easily cleaned, and rates a high wear resistance.

This roll is said to be ideal for such use as guide rolls, idlers (also conveyor rolls) where exposed steel and iron is objectionable, but where hard smooth surface is desired.

This type of plastic covered rolls is one of many developed by the Roll Department of the Rodney Hunt Machine Company of Orange, Mass., which specializes in rolls for all industrial uses.

TAPPI Empire State Section Meets

The Watertown Group of the Empire State Section of the Technical Association of the Pulp and Paper Industry met at the Hotel Woodruff, Watertown, N. Y., on March 24. George Fromm of the American Cyanamid & Chemical Company talked on The Application of Resins to Paper. A film "The Plastics Age" was shown. F. M. Williams of the Williams Apparatus Company gave a demonstration of his new softness tester. Frank J. Lang of the Dexter Sulphite Pulp and Paper Company and Chairman of the section, made brief remarks. Those present included C. B. Aiken, W. J. Argey, M. H. Bennett, W. Ronald Benson, C. Wells Clark, Way Clark, George Fromm, F. C. Goodwill, J. T. Jenssen, Frank J. Lang, E. A. Loyst, Milton J. Maguire, D. C. Mather, H. J. Mellen, W. B. Mills, C. A. Nugent, D. K. Pattilloch, Harold Remington, John H. Rich, Carl F. Richter, Charles J. Slack, H. A. Spencer, P. D. Switzer, Beau Thomas, B. H. Treadwell, F. M. Warrey, W. Bradford West, F. M. Williams and S. J. Young.

Boston Trade Notes

[FROM OUR REGULAR CORRESPONDENT]

Boston, Mass., March 29, 1943—Floyd H. Blackman, president of D. F. Munroe Company, has returned to his office after an absence of two and one-half months on account of illness.

Eliot Porter, of Storrs & Bement Company, son of the well known Joseph Porter, manager of the fine paper department of that company, is now in the Army Air Corps.

Indianapolis Demand Active

INDIANAPOLIS, Ind., March 29, 1943—Continued activity for virtually all grades of paper featured business last week, but even so the trade continues in a troubled state of mind, due to the increasing difficulty in doing business. As old trucks become older, or old employees leave to join the armed forces or go to higher paid jobs in defense plants and with tire rationing and gasoline rationing, the problems confronting the paper business truely mount. Add to all these, the increasing taxes, particularly Federal, and you have something to think about. As the State Legislature closed, it became apparent that the amount of state taxes to be paid next year will be little, if any, larger than this and county and city units are bending every effort to keep tax rates down.

The last week saw a good demand for fine paper with books, covers and ledgers all moving nicely. Prices were firm to strong and in some instances stocks were scarce and deliveries delayed. Many items in the fine paper market are out entirely and will not return before the end of the war.

Newsprint showed little change. Local publishers do not seem much concerned about a shortage of print paper. The larger city papers have seen their lineage cut because many companies, formerly large advertisers now are making nothing to advertise. They are keeping their names before the public to some extent, but their space requirements are not what they were a year ago.

Paper box makers are having a Roman holiday. They are operating, nearly 100 per cent as essential industries serving defense plants both in this and other sections. Their production is limited only by the available labor and the hours of the day. As spring gets under way, thoughts turn to summer specialities. Fair stocks now are in retail hands and because of the radical curtailment in private driving, it is believed the demand for these items will be considerably smaller than a year ago.

Jamaica Expands Paper Demand

MONTREAL, Que., March 8, 1943—F. W. Fraser, Canadian Trade Commissioner in Kingston, Jamaica, reports that paper and its various manufactures are a large item in Jamaica's import trade, and that the demand has moderately but steadily increased in recent years, following the natural increase in population and the general betterment of living standards. For these two reasons, he says, a continued expansion of the paper trade in the post-war period can reasonably be expected, especially in view of the plans that have been made by the British and United States Governments to further the economic and social development of their Caribbean territory.

In 1941 Canada's share of Jamaica's import business amounted to £139,141 (65 per cent of the total) as compared with £32,588 in 1938. In 1938 and 1939 Canada was an important supplier of only newsprint, containers for Jamaican produce and miscellaneous paper manufactures. During 1941, however, various paper and paper products were imported from Canada, including cardboard and millboard, cigarette paper, newsprint, wallboard, waxed and greaseproof paper, wrapping paper, bags, boxes and cartons, writing paper and envelopes, etc.

CONSTRUCTION NEWS

Under limitations order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of the order is not known.—EDITOR.

Philadelphia, Pa.—Lewis and Howard G. Zeyher, Philadelphia, have purchased the two-story and basement factory on local site at Fifth and Buttonwood streets, heretofore owned and used by George D. Feidt & Co., manufacturer of chemicals. The property totals about 21,600 square feet of floor space, and will be occupied by new owners for the manufacture of paper boxes and containers. The Feidt company is removing to a new location in city and purchasers of present factory will take possession at early date.

Long Island City, N. Y.—The Equitable Paper Bag Company, Inc., 47-02 31st Place, Long Island City, manufacturer of paper bags and containers, has leased the building on local site at 47-30 24th street, approximating about 17,000 square feet of floor space, and will use for expansion.

Lockport, N. Y.—The United Paperboard Company, Lockport, manufacturer of box board, chip board and other paper board stocks, wrapping papers, etc., plans early rebuilding of portion of mill, recently damaged by fire, with loss estimated close to $50,000, including equipment.

Brooklyn, N. Y.—The Akron Paper and Housewares Corporation, paper products of various kinds for domestic service, a new company in city, has leased a one-story building at Flushing avenue and Sanford street, Brooklyn, and will occupy for plant for paper converting and other service, including storage and distribution.

St. Paul, Minn.—The St. Paul Box Company, organized to manufacture paper boxes and containers, has leased a one-story factory on local site at 363 North Fairview avenue, and will improve and occupy for plant. A. P. Lentz heads the company.

Menominee, Mich.—The Martindale Pulp Wood Insulation Company, foot of Church street, Marinette, Wis., manufacturer of pulp wood specialties, has leased a one-story bulding at Menominee, and will occupy for plant, replacing factory at Marinette, recently damaged by fire, as previously noted in these columns. The Marinette plant will not be rebuilt at present time, and plans under consideration for this purpose, as formerly mentioned, have been abandoned. Equipment for sizable output will be provided in new mill at Menominee. H. E. Martindale is general manager.

Kansas City, Mo.—American Asphalt Roof Corporation, 15th street and Blue River avenue, manufacturer of prepared roofing, roofing paper stocks, etc., plans early rebuilding of portion of plant recently damaged by fire. An official estimate of loss has not been announced. Main plant and headquarters are at Thirty-first street and St. Clair avenue, East St. Louis, Ill.

Minneapolis, Minn.—Fire recently damaged the plant of the Pan-American Wall Paper & Paint Company, 23 North Second street, dealer in wall paper stocks, etc. An official estimate of loss has not been announced. The damage will be replaced.

Cleveland, Ohio — Dobeckum Company, 3301 Monroe street, manufacturer of cellophane products, is maintaining production on close to capacity output, with over 80 percent of output for Government account. It is expected to hold to present basis for an indefinite period.

Long Island City, N. Y.—The former plant of the New York Fiber Company, Newtown Creek district, manufacturer of fiber products, has been purchased by the Onward Realty Company, Long Island City, and will be remodeled for another line of production.

Green Bay, Wis.—The Green Bay Box Company, 1406 South Broadway, manufacturer of paper boxes and containers, is completing construction of new one-story addition to plant, about 50 x 100 feet, previously referred to in these columns, and expects to occupy the structure at early date. The Selmer Company, Northern Building, Green Bay, is general contractor. Plans were prepared by Harry W. Williams, last noted address, architect.

Brooklyn, N. Y.—R. B. Ingraham, Brooklyn, has leased a floor in local industrial building at 95 Lorimer street, approximating 13,200 square feet of floor space, and will occupy for new converting plant for the manufacture of a line of paper products.

Brooklyn, N. Y.—The International Mailing Tube and Wrapper Company, 29-05 Review avenue, Long Island City, manufacturer of cardboard mailing tubes, paper wrappers, etc., has arranged for lease of additional space in building at 425 Greenpoint avenue, Bklyn, where company recently took over 16,000 square feet of floor area, as previously noted in these columns. A like amount of space is being secured under the new lease, giving the company two floors, or 32,000 square feet of space at new location.

New York, N. Y.—The Peerless Album Company, 38 West Twenty-first street, manufacturer of cardboard specialties, has leased space in building at 22-28 West Twenty-first street, and will occupy for expansion in converting plant.

Opens Philadelphia Office

Roy B. Rose has been named district manager for H. K. Porter Company, Inc., Pittsburgh, Pa., manufacurer of industrial locomotives and process equipment, for a territory including Eastern Pennsylvania, Western New Jersey, Maryland and Delaware. He will be headquartered in Philadelphia, where the company opened offices in the Girard Trust Building, on April 1.

H. K. Porter Company, Inc., reports that its business in this area has more than doubled in the past year. Increased volume of demand for chemical process equipment in particular and for the company's new line of wood tank equipment, has required the installation of the new offices for the most efficient servicing of customers in the area.

Mr. Rose is an executive of the company's process division, and has been a resident of Pittsburgh, Pa.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending March 27, 1943

STOCKS

	High	Low	Last
A. P. W.	2¾	2¾	2¾
Armstrong Cork Co.	33⅜	32	33⅛
Celotex Corp.	13⅜	11⅝	13
Celotex Corp., pf.	88	84¾	87¼
Certain-Teed Products Corp.	6½	5¾	6
Certain-Teed Products Corp., pf.	61½	50½	59
Champion Paper & Fibre Co.	19¼	18½	19¼
Champion Paper & Fibre Co., pf.	103½	103	103
Congoleum Nairn Co.	20⅛	18⅞	19⅜
Container Corp. of America	22⅜	22	22½
Continental-Diamond Fibre Co.	14	12¾	13¾
Crown-Zellerbach Co.	13⅞	13¼	13¾
Crown-Zellerbach Co., pf.	89½	88	89
Dixie-Vortex Co.	13½	13	13½
Dixie-Vortex Co.—A.	40	39½	39½
Flintkote Co.	18⅞	17⅞	18⅞
Flintkote Co., pf.	....	....	....
Robert Gair	3½	3⅛	3⅛
Robert Gair, pf.	12⅞	12½	12⅞
International Paper Co.	12¼	11¼	11⅞
International Paper Co., pf.	59½	57¾	58¾
Johns-Manville Corp.	83½	78¾	83½
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	29¾	29	29⅛
MacAndrews & Forbes	23½	23	23¼
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	35½	35¼	35½
Mead Corp.	9½	8¾	9½
Mead Corp., pf. A—6%	86	86	86
Mead Corp., pf. B—5½%	76	75	75
Paraffine Companies, Inc.	40⅛	39½	40⅛
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	13⅜	12¾	13
Rayonier, Inc., pf.	29	28¾	28¾
Ruberoid Co.	23⅞	22½	23⅞
Scott Paper Co.	40½	39	39
Scott Paper Co., pf.	113	113	113
Sutherland Paper Co.	31¾	30¼	31
Union Bag & Paper Corp.	11⅜	10	11
United Paperboard Co.	5¼	4¾	5¼
U. S. Gypsum Co.	71	67⅞	70½
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	15¼	14½	15¼
West Virginia Pulp & Paper Co., pf.	106½	106½	106½

BONDS

Abitibi Pulp & Paper Co. 5s '53	62	61	62
Celotex Corp. 4½s '47	102⅜	101¾	102
Certain-Teed Products Corp. 5½s '48	99½	98½	98½
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	106½	105¼	105¼
International Paper Co. 5s '47	104⅛	103⅞	103⅞
Mead Corp. 3¼s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending March 27, 1943

STOCKS

	High	Low	Last
American Box Board Co.	6⅜	6¼	6⅜
Brown Co., pf.	....	....	....
Great Northern Paper Co.	36	34	34¼
Hummel-Ross Fibre Corp.	5¼	4¾	5
National Container Corp.	11	10¾	10¾
St. Regis Paper Co.	3	2¾	2¾
St. Regis Paper Co., pf.	125½	124	125½
Taggart Corp.	3¾	3¼	3⅜

BONDS

American Writing Paper Co. 6s '61	91	90¼	90¼

M & O Nets $1,616,863

The Minnesota and Ontario Paper Company and subsidiary companies in the U. S. and Canada, wholly-owned directly and indirectly, showed a consolidated net profit of $1,616,863 after provision for income taxes and contingencies for 1942 as compared with $1,827,516 for 1941.

Whitakes Profits Lower

The Whitaker Paper Company for 1942 reports a net income of $216,456, compared with $381,937 earned the year before; net sales, $15,444,024, against $15,339,187.

Celotex Earns 37 Cents

The Celotex Corporation for the three months to January 31, reports a net income of $275,575, equal after preferred dividend requirements to 37 cents each on 638,410 shares of common stock, compared with $278,291, or 37 cents a share in the three months to January 31, 1942.

A registration statement covering the proposed issuance by the Celotex Corporation of 75,000 shares of common stock for purchase by a selected group, consisting of employes of the company and a limited number of persons having long-standing business relations with it, has been filed with the Securities and Exchange Commission.

The plan to issue new stock was advanced, the company said, in lieu of recent negotiations, which failed, by the same group to buy some such large block of existing stock. The interested parties will buy the new stock at $10.50 a share.

Rolland Co. Profits Off

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., March 22, 1942—The annual statement of the Rolland Paper Company for 1942 shows net profit of $164,802, as compared with $175,540 in 1941. Jean Rolland, president, states that demand for the company's products has not eased and based on the volume of unfilled orders on hand it is expected that the company's mills at St. Jerome and Mt. Rolland can be operated during 1943 at current levels, unless additional government restrictions applying to the paper industry or a scarcity of pulp necessitate a reduction in output.

The balance sheet shows a strong position, net working capital being up some $125,000 at $1,131,352. During the year $75,000 par of the company's bonds were retired.

Masonite Nets 40 Cents

The Masonite Corporation for the quarter to February 28, reports a net profit after $93,000 contingency reserve and $927,900 State and Federal income and excess profits taxes was $256,845, equal to 40 cents a common share after preferred dividend requirements. Six months to February 27: Net profit after $2,035,700 tax provision and $193,000 contingency reserve was $603,430 or 97 cents a common share. No comparable figures are available for similar periods of previous year.

Masonite Nets 40 Cents

The Masonite Corporation reports for the second quarter of three months ending February 28, 1943, a profit of $1,277,745 before Federal and State income taxes and contingency reserves. Net profit amounted to $256,845 subject to final audit, equal to 40 cents per share on the outstanding common stock of 539,210 shares, after providing for preferred dividends. The above stated net profit was after provision for Federal and State income taxes of $927,900, of which $617,900 was for Federal excess prof-

its tax. In addition, provision was made for $93,000 to the contingency reserve.

National Container Nets $1.98

The National Container Corporation and subsidiaries for 1942 reports a net profit of $654,833, equivalent to $7.98 a share on the common stock, compared with $1,073,435, or $3.25 a share, in 1941. Last year the Federal normal income taxes and the surtax were $208,321 and the excess profits tax, after a deduction of $122,704 post-war credit refund, amounted to $1,104,343, compared with a total of $1,655,762 for Federal taxes, in 1941.

River Raisin Paper Co. Profits Lower

J. F. Gray, president, River Raisin Paper Co., places the company's net profit for 1942 at $142,284.77 after provision of $235,000 for taxes. Both items are considerably reduced from the previous year when the company's net profit was listed as $485,312.62 and taxes at $565,000. The changeover from peactime to wartime operations by the company's customers and large fluctuations during the year in the costs of major raw materials are cited as the principal reasons for the reductions.

Inventory Index Lower

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., March 31, 1943—January index of the value of paper mill inventories was 139.4 compared with 144.0 in December and 134.4 in January of last year taking an average month of 1939 at 100 according to the monthly industry survey of the Department of Commerce.

Paper mill index for January of the value of shipments was 140 compared with 144 in December and 171 in January of last year also taking an average 1939 month at 100.

Lily-Tulip Corp. Profits Off

Lily-Tulip Corporation and subsidiaries for 1942, reports net profit, after a provision of $309,287 for Federal income taxes and $1,131,785 for excess profits tax but before reserve for contingencies, was $694,906, equal to $3.66 a share. After providing $100,000 for general contingencies, there was a balance carried to earned surplus of $594,906, or $3.14 a share. In 1941 net profit before contingencies was $820,325, or $4.32 a share.

Hummel-Ross Earnings Lower

The Hummel-Ross Fibre Corporation reports for the year ending December 26, 1942 net profits of $405,696, representing a return of 93 cents per share on the common stock after all taxes and after providing in full for dividends on the preferred stock. This compares with earnings of $604,145, for the year 1941, equal to $1.43 per share after provision for all taxes and preferred dividends.

Howard Smith Nets $2.11

The Howard Smith Paper Mills, Ltd., reports for 1942 a consolidated net profit of $1,134,096, equal to $2.11 a share of common stock, compared with $1,272,881, or $2.53 a share in 1941.

Abitibi May Pay Bondholders

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., March 29, 1943—Persistent rumors are abroad that another payment on account of principal will be made to bondholders of Abitibi Power and Paper Company, Ltd. The two payments that have been made so far, totalling $11,101,410, leave approximately $37,165,500 still outstanding. The first payment on principal was made in 1941 and the second last year.

A compilation at the beginning of this year shows accrued interest, in arrears, on the 5% first mortgage bonds, amounting to about $26,198,000, while interest on interest owing to close to $7,070,000 has accumulated, making the aggregate obligation to bondholders approximately $70,433,500.

Abitibi bonds featured the corporate section of the market this week with actuals and COD's moving up around two points. Decision of the Privy Council on the constitutionality of the Abitibi Moratorium Act is expected fairly soon. If it is declared unconstitutional, the way presumably would be open for the bondholders to proceed with the sale of the company's assets or whatever other settlement they might choose. Regardless of which side the decision might be on, however, some traders see it as bullish in view of the fact that it will serve to clear the long-tangled Abitibi situation.

Two New Paper Specialties

The Cellulose Products Laboratory, division of the Richaven Company of Tacoma, Wash., together with Herman Scott Chalfant, Inc., 342 Madison avenue, New York, announces two new specialty paper developments of interest to the paper industry.

Cellutin is a very flexible, greaseproof paper being manufactured in an eastern mill for food packaging and container industries. This paper is produced by an impregnation and coating process using a strong bleached base stock. In addition to resisting turpentine and other vegetable and mineral oils for indefinite periods, this paper will test better than 100% in Mullen strength and possesses very high folding qualities.

The second product, Celluduc, involves an impregnating process for waterproofing paper. This product is a result of many months of research in which every type of waterproofing formula was considered. Most any type of paper base stock can be used including greaseproof papers and glassine. The treated papers will hold water indefinitely, have a high degree of water repellency, and the glassine and greaseproof papers are nearly moisture vapor proof. The strength of the base stock paper used is not changed by the process.

Both of these papers are available in large quantities and a certain percentage of production can be obtained without priorities. The papers are odorless, tasteless and nontoxic.

Plymouth Cordage Votes Dividend

The Plymouth Cordage Company has declared a regular quarterly dividend of $1.50 a share on the common, payable April 20 to stock of record March 31.

Newsprint Supply Seems Assured

TORONTO, Ont., March 29, 1943—Barring unpredictable circumstances, Canadian newsprint manufacturers expect to be able to maintain the present rate of production throughout the balance of the year.

Many factors enter into the production picture, however, and it is well to be wary of predictions. Conditions change rather rapidly these days. Less than a year ago, power resources constituted the greatest worry for many operators. Now it is wood supply. Further curtailment of electrical energy is not thought likely, but the recent government bonus of $1 a cord on firewood may have an influence on pulpwood operations and if the spring floods repeat last year's early appearance, an already tight situation in the pulpwood market might easily become serious enough to be reflected in a noticeable reduction in newsprint production before the year is out.

The most recent reports on pulpwood cutting are more favorable, but there has not been any real change in the situation since Newsprint Administrator R. L. Weldon stated that the output this year would be 200,000 tons, and possibly more, under the 1942 figures. Last year Canadian mills turned out a little less than 3.2 million tons, which was 238,000 tons less than was produced in 1938.

The output, therefore, is expected to be in the neighborhood of three million tons, which should be sufficient for all demands likely to be made upon the industry this year.

It would not be surprising if pressure developed to reduce the size of newspapers in order to release larger quantities of pulp for other purposes. No one is overlooking the possibility that the deferred 10% reduction in newsprint production may be again proposed. There are still many uncertainties, but on the basis of known facts, the newsprint industry expects to be able to take care of all demands.

To Settle Oswego Mills Estate

John E. Joyce, referee in bankruptcy, announces that John Anderson, as trustee and receiver in the matter of the Oswego Tissue Mills, Inc., has filed his verified final reports and accounts, and applications for his discharge, and petitions for allowances, all of which may be inspected at the office of the referee in bankruptcy. A final meeting of the creditors will be held in room 237, United States Court House, Foley Square, New York, on April 8, 1943, at which time these reports and accounts and applications will be examined and passed upon. The books and records of the bankrupt estate will be offered for sale or otherwise disposed of, and such other business as may properly come before the meeting will be transacted.

Sixteen in Quarter-Century Club

Sixteen employees of the Paper Manufacturers Company of Philadelphia have been with that company for 25 years or more. This is a splendid record of employee loyalty—and new names are being added to the roster each year. As an employee reaches his twenty-fifth year with the company, he or she automatically becomes a member of the Quarter-Century Club. Miss Nellie M. Glynn, secretary, and Frank W. Coar, treasurer—have been with Paper Manufacturers for 38 and 35 years respectively. Other service records among club members range from 34 to 25 years.

"What about edges?"

That question is often put to us.

And it is an important question . . . There can be no standard answer because there are no standard conditions. One factor is always present: the tendency of a swiftly moving belt of wire cloth to tear and crack at the edges. Beyond that, practically every Fourdrinier machine has peculiar phases all its own. We endeavor to create an edge that will suit them . . . In order to suit them exactly and to produce the finest paper possible, we offer a variety of selvedges and edge modifications. Moreover, wire manufacturers have developed edge specifications for alloys, tensions and combinations of weave patterns. From the wide range of variations thus afforded you can usually arrive at the one right selvedge which will enable each machine to give you its "most and best."

THE LINDSAY WIRE WEAVING COMPANY

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 116 April 1, 1943 No. 13

COMING EVENTS IN PAPER INDUSTRY

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION. Twenty-fourth Annual Convention, Commodore Hotel, New York, June 15-17.

POST-WAR PROSPERITY

Deliberate and wise planning must of necessity precede the adoption of any workable plan for the readjustment of a constructive peace-time economy in this and other countries after the war. Any attempt to formulate a procedure which shall embody an equitable basis upon which all countries may immediately go to work to build a better and more secure future, many appear to some people to be highly optimistic and impracticable. Mankind, however, has the ability and resources to accomplish this great task. To make a good start would seem to be the primary requisite and if this much can be accomplished the plan can be expanded, modified and perfected to restore all countries to a sound economic and social way of life. The task is one of great magnitude and difficulty but it would be foolish to argue that it cannot be done because it never has been done. The experience of the first World War can be profitably utilized to formulate a better international relationship. Promises of an Utopian-like future are, however, no more likely to be achieved than the adoption of Plato's ideal republic. A fair, practical method and whole-hearted cooperation of all nations appears to be the only assurance for success.

Principles necessary for post-war prosperity, to be used as a check sheet for continued study of post-war objectives, was issued on March 26 by the resources planning board of the National Association of Manufacturers. The report, of 48 pages, is the result of several years of preliminary study by the committee and is entitled "Jobs, Freedom, Opportunity." It is presented in three parts: the first analyzes the exact nature of the post-war problem; the second discusses the domestic problems which must be solved, and the third is devoted to the solution of the international problem. Four factors, states the report, will determine the post-war economic prosperty of this nation: (1) the public's need for goods (2) the productive capacity of the nation (3) the public's accumulated buying power (4) the public's willingness to buy. "With respect to the first three factors," the report states, "we will have a favorable situation that is unprecedented in the nation's history. The public's willingness to buy is the only uncertain element in the picture, and even that can be assured if we are careful to avoid inflation and if business and governmental policies provide the assurance for continued jobs."

The association's recommendations in the domestic field include the fostering of competition; the elimination of cost and price rigidities; the elimination of unnecessary restrictions on investments; a general overhauling of our tax laws, and important adjustments in money, banking, and credit systems. "If government will provide the proper economic and social environment by constructive action in this field," the report contends, "then business, agriculture, and labor will be able to accept full responsibility for providing full employment." The report lists the obligations upon business, agriculture, and labor and says: "These groups must accept their obligations. Government can make it easy or difficult for them to do so, but government must not accept the responsibility itself."

External requirements for prosperity are recounted as three objectives which the association believes the United States and its associates must attain to maintain a post-war peace and international well-being: (1) that the world must have no more wars, (2) that the peoples of the world should have an opportunity to live peacefully and to gain prosperity under institutions of their own choice, (3) that some framework should be established through which the political and economic relationships between nations of the world can be developed and maintained on an orderly basis. The report contends that whether capital funds for the improvement of undeveloped countries should be made available through private enterprise or governmental action, "adequate agencies should be established to insure that they are administered with due regard for whatever obligations may be incurred in making them available. Free enterprise is the rule of our country", the report continues. "It does not follow, however, that free enterprise will necessarily be the rule in the countries where great developments are likely to take place. Because of such differences in economic organization some international agency must be set up to reconcile conflicts of interest in international investments."

The committee's other recommendations in the in-

ternational field include the following: "Each national has the right to determine for itself whether it will accept foreign investments and the terms upon which they may be made, and The United States Government should take appropriate action to protect the property, rights, and interests of American citizens in foreign countries." Monetary systems should be stabilized by international machinery. An international currency for all peoples of the world would probably be impracticable from an administrative standpoint. This nation should look forward to reducing interest on lend-lease operations, but not to reducing the principal. Government corporations abroad should be liquidated after the war. The present-day cooperations in world communications should be extended in fields of aviation, radio, and shipping, with precautionary eye on air transport lest it be developed for war purposes under cover."

Your Red Cross

For more than a score of years, people in all walks of life have been making annual contributions to support the far-flung work of the American Red Cross. The little Red Cross stickers in countless windows were visual evidence of the nationwide support of, and confidence in, the Red Cross.

Each year during that period hundreds of thousands have come in contact with the Red Cross. They may have been disaster victims. Perhaps they were enrolled in Red Cross first aid classes or one of the other educational projects of the organization. Quite possibly they were among the many volunteer workers whose unselfish spirit of service represents the Red Cross cornerstone.

During 1942, however, more than 1,000,000 men and women made a new contact with the Red Cross. They were those who each contributed a portion of their blood to the Red Cross Blood Donor Service. Collected at the request of the Army and Navy, this blood is processed into plasma and serum albumin, and today it is being used on the world's battlefields, helping to give our wounded a much better chance at life.

In 1943, 4,000,000 donors are needed.

It may safely be said that the Red Cross Blood Donor Service has opened the eyes of many to the real significance of the Red Cross. Another eye-opener, though not so well known, is the fact that in North Africa, in New Guinea and the Solomons, and wherever else the need arises, surgical dressings made by Red Cross volunteer workers are being used to bind the wounds of those who are out there prepared to give their last full measure of devotion.

The Red Cross is your Red Cross. It is yours in a deep and personal sense. It is doing the things you yourself would do if you had the opportunity. Not only in one isolated case, but all along the line.

To do this costs money. This month (March) the Red Cross is raising its 1943 War Fund, the goal of which is $125,000,000. Every dollar you contribute will be spent as wisely as you would spend it. And you have the assurance that it will help save the lives of our boys, help maintain their morale, alleviate suffering in many parts of the world, and build a stronger and firmer civilian front.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1943		Corresponding Weeks—1942	
February 13	88.6	February 14	103.4
February 20	88.3	February 21	103.8
February 27	90.9	February 28	104.5
March 6	89.5	March 7	102.7
March 13	89.8	March 14	101.9
March 20	*88.4*	March 21	103.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1942	104.5	103.9	102.9	100.4	95.3	87.4	75.8
1943	87.5	*88.6*	....	....	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1942	80.8	82.8	90.6	86.9	80.1	90.4
1943	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1936	1937	1938	1939	1940	1941	1942	1943
Year to Date..	76.1	89.2	66.7	79.1	86.2	88.4	103.8	*88.5*
Year Average.	80.4	79.8	71.5	83.4	85.6	97.4	90.4	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	*88*	..	..	..	..	..	..	..	..	..	..	..

Week ending Feb. 13, 1943—87 Week ending Mar. 6, 1943—93
Week ending Feb. 20, 1943—91 Week ending Mar. 13, 1943—93
Week ending Feb. 27, 1943—94 Week ending Mar. 20, 1943—*92*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

S. B. Taylor Made Vice President

S. B. Taylor, works manager of the Reliance Electric and Engineering Company, Cleveland, since 1931, was elected manufacturing vice-president at a meeting of the company's directors, Thursday, it is announced by Clarence L. Collins, president.

Officers re-elected by the directors were Mr. Collens, president; H. Morley Hitchcock, vice-president and treasurer; A. M. MacCutcheon, engineering vice-president; James W. Corey, sales vice-president; C. V. Putnam, secretary; and H. F. Walters, assistant treasurer.

A native of Kentucky and a graduate in electrical engineering in 1924 from Purdue University, Mr. Taylor took an additional year of post-graduate work in business administration at the University of Illinois before coming to the engineering department of Reliance. He transferred to the manufacturing department of the company in 1930 and became works manager a year later. He was elected a director of the company in 1935.

A member of the U. S. Coast Guard Reserve, Mr. Taylor is also president of the Cleveland branch of the National Metal Trades Association and a member of the association's administrative council. He is a member of Delta Tau Delta and of two national honorary engineering fraternities, Tau Beta Pi and Eta Kappa Nu.

Boston Paper Men To Meet April 8

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 29, 1943—Secretary Frank B. Cummings is sending out notices of the annual meeting of the Boston Paper Trade Association at the Algonquin Club April 8, when Edmund Stevens, war correspondent for the *Christian Science Monitor*, will be the guest speaker. The reception is to be at 6 o'clock, followed by the dinner.

TO YOU WHO WERE "BOSS"
Before Pearl Harbor, you were our "boss." We served you to the best of our ability. We enjoyed working for you.
But now we have only one boss. He tells us what to do—what to make—and what not to make. We're with him 100%, but we are looking forward and preparing for the day when you again will be the boss.
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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
Edited by R. G. Macdonald, Secretary

New Derivatives of Lignin*

By E. Bruce Brookbank,[1] F. E. Brauns,[2] H. F. Lewis,[2] and M. A. Buchanan[3]

Abstract

Using the commercially available lignin, Meadol, as a raw material, the authors have prepared an extensive series of esters of mono- and dibasic aliphatic acids, as well as esters of several aromatic acids. Twenty-six compounds have been characterized.

Meadol is prepared from soda black liquor by evaporating to a definite solids content and precipitating the lignin from the solution with carbon dioxide. In its final form it has a methoxyl content (on an ash-free basis) of 21.5%, which calculates to six methoxyl groups for each lignin building unit; five free hydroxyl groups are also available for esterification.

These esters exhibit widely different melting points and solubilities in solvents such as ether and petroleum ether. The mono-basic aliphatic esters are soluble in acetone, chloroform, dioxane, benzene, and ethyl acetate and insoluble or only slightly soluble in methyl and ethyl alcohols. In the two ethers the lower esters are insoluble and the higher esters quite soluble. Melting points likewise show a wide range from as high as 200° C. down to 65-70° C.

A number of technical applications have been studied. The stearate and others of similar physical properties appear to be unusually adaptable as internal mold lubricants for certain types of wood plastics.

As one phase of a broad program dealing with the chemical properties and uses of lignin derivatives, in particular those of hardwood soda lignin known as Meadol, an intensive study has been made of the esters of lignin with aliphatic acids. This report covers the general methods followed for preparing and purifying the esters and stresses particularly certain properties of and uses for these esters.

The acetyl derivatives of lignin have been known for many years. In fact, this reaction has furnished the lignin investigator with a quantitative method for estimating hydroxyl groups in his particular product. Nevertheless, the possible technical applications of the product have not been too intensively investigated, because the solubilities of the acetates are much the same as those of the lignin precursor. Other acid groups introduced into the lignin molecule include the benzoyl, p-bromobenzoyl, p-nitrobenzoyl, toluenesulphonyl, phthalyl, and succinyl. In general, these compounds have been prepared in connection with structural studies, and little consideration has been given to the possible uses of the products.

In the following report, some 18 lignin esters of monobasic aliphatic acids and four of dibasic aliphatic acids will be characterized.

The product Meadol represents an isolated lignin prepared from hardwood soda black liquor. The black liquor is first evaporated to a specific gravity of 1.1, which corresponds to a solid content of 19-20%; of this, some 60% is organic matter and the remainder is soda ash. The lignin is precipitated from the solution by passing carbon dioxide (from flue gas) through the solution until a pH of 8.5-8.6 is reached. The lignin separates in the form of an extremely fine precipitate which is coagulated on heating to 90° C., followed immediately by cooling to 40° C. The lignin thus precipitated is filtered, washed with water, with dilute sulfuric acid, and again with water, and is dried on a double-drum drier. The dried, powdered product (sold as Meadol) has an ash content of 0.5% and a moisture content of 2-4%. Its methoxyl content is 21.5%, which agrees well with values usually given for hardwood lignins. The carbon content of 64.4% and hydrogen content of 5.9% are within the range generally ascribed to these products. Meadol is soluble in pyridine, partly soluble in dioxane, acetone, and alcohol, and insoluble or, at best, only very slightly soluble in ether and petroleum ether.

In general, these lignin esters are prepared by the same method; this involves the dropwise addition of 5.5 moles of the acid chloride to a dry pyridine solution of 1 mole of Meadol (unit molecular weight of 860) previously dried in a vacuum desiccator over sodium hydroxide. The crude ester can be precipitated by pouring the reaction mixture into ice water with vigorous stirring. Pyridine can be recovered in large measure. The impure precipitate contains some pyridine and pyridine hydrochloride, as well as free fatty acid, and it is necessary to remove these to recover the ester in an approximately pure condition. The method followed is specific for the particular ester and depends upon the nature both of the ester and of the fatty acid. No attempt will be made at this time to describe these purification processes; rather, they will be made the subject of a later paper to be presented at the spring meeting of the American Chemical Society.

The number of acid groups coupled with the lignin building unit has been determined by means of the methoxyl value. In general, the monobasic esters con-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 15-18, 1943.

[1] Member TAPPI; Development Engineer, The Mead Corporation, Chillicothe, Ohio.

[2] Member TAPPI; Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

[3] Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

tain four acid groups for each original lignin building unit of 860. The notable exceptions are the acetate, propionate, and n-caproate, which contain five, and the palmitate and stearate, which contain three. There appears to be one hydroxyl group whose ester linkage is very much less stable than the ester linkages of the other groups. In spite of its instability, it is possible to isolate the penta esters of the lignin compounds of the lower fatty acids. A second ester linkage is hydrolyzed in the case of the esters of the highest fatty acids studied.

The esters of the dibasic aliphatic acids appear to be composed of two molecules of fatty acid to one of lignin, and thus are much the same as the tetra esters described above.

The most interesting physical characteristic of these new lignin compounds is that of solubility. Without going into detail, the following statement may be made regarding the effect of a variation in acid groups in the solubility behavior of the lignin esters. Esters of the acids through the C_5 acid (valeric acid) are soluble to the extent of less than 10% in methyl or ethyl alcohol; they are soluble to the extent of 50% or more in acetone, chloroform, dioxane, benzene, or ethyl acetate; they are almost insoluble in petroleum ether, and the acetate and propionate are insoluble in ethyl ether. As the molecular weight of the fatty acid increases beyond this point, the solubilities in the two alcohols decrease but increase considerably in ethyl ether. The higher esters (above the C_{13} acid) are readily soluble in all the solvents listed, with the exception of the alcohols, and the palmitate and stearate even dissolve in these solvents to somewhat less than 10%. These lignin derivatives are readily soluble even in petroleum solvents (such as petroleum ether) and in ethyl ether and benzene.

Esters of the dibasic acids prove to be much less soluble in all solvents than were the esters of the monobasic acids.

The melting points of the lignin esters of the monobasic acids are highest for the esters of low molecular weight and steadily decrease to a low of about 65° C. for the lauroyl and tridecanoyl derivatives. Melting points of esters of the dibasic acids are higher than those of monobasic acids of corresponding carbon content.

Some of these characteristics are presented in Tables I and II.

A study of the industrial applications of the Meadol esters has just been initiated. It has been found that Meadol stearate is an excellent mold lubricant for woody plastics such as redwood, hydrolyzed wood, and the like. Because this product is also soluble in drying and semidrying oils, it may be successfully incorporated in ink and paint formulations. A solution of Meadol stearate in linseed oil is of a buttery consistency, as compared with the stringy solutions obtained with drying oil varnishes. Thus, its use as a modifier of the flow characteristics of inks is indicated.

Molding compounds in which various Meadol esters have been substituted for Meadol have shown a reduction in water absorption of the finished molded articles, especially when the higher esters are used. This is what would be expected from the hydrophobic nature of the acid group.

Other possible applications of the various esters are suggested by their solubility and melting point behavior. By selection of the proper ester it is now possible to use Meadol in many applications where it could not be used otherwise. Studies of these uses are currently under way, and the full picture of their potential field of application is still incomplete.

TABLE I.—CHARACTERISTICS OF THE ALIPHATIC MONOBASIC ACID ESTERS OF MEADOL

Acyl Groups	Number of C Atoms in Acids	Yield of Purified Ester % *	Methoxyl in Purified Ester %	Number of Acid Groups	Theoretical Methoxyl %	Melting Point °C.
Acetyl	2	98	17.2	5	17.4	197-204
Propionyl	3	96	16.3	5	16.3	183-193
α-Butyryl	4	96	16.2	4	16.3	124-129
Isobutyryl	4	92	16.1	4	16.3	152-162
α-Valeryl	5	94	15.2	4	15.6	140-155
Isovaleryl	5	96	14.8	5	14.5	130-140
α-Caproyl	6	96	14.1	5	13.8	135-140
Isocaproyl	6	90	14.8	4	14.9	130-145
Heptoyl	7	89	14.3	4	14.2	120-135
Decanoyl	10	40	12.5	4	12.6	80-95
Undecanoyl	11	78	12.5	4	12.1	80-110
Lauroyl	12	54	11.6	4	11.5	60-85
Tridecanoyl	13	91	10.5	4–5	4–11.3 5–10.1	65-70
Myristoyl	14	64	11.2	4	10.9	100-108
Palmitoyl	15	46	11.4	3	11.8	90-105
Stearoyl	16	56	11.4	3	11.2	140-150
Oleoyl	16	60	8.5	5	8.5	130-140

* Based upon the crude product.

TABLE II.—CHARACTERISTICS OF THE ALIPHATIC DIBASIC ACID ESTERS OF MEADOL

Acyl Group	Number of C Atoms in Acids	Yield of Purified Ester * %	Methoxyl in Ester %	Ratio of Acid to Meadol	Theoretical Methoxyl %	Melting Point °C.
Succinyl	4	90	18.2	4:2	18.0	195-200
Adipyl	6	52	18.2	3:2	18.0	165-180
Suberyl **	8	98 (crude)	...	...	...	.....
Azelyl	9	68	16.6	4:2	16.6	165-180

* Based upon the crude product.
** Not yet purified and tested.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Franklin E. Caton, consultant on cylinder specialties, American Writing Paper Corporation, Holyoke, Mass., and formerly with Container Corporation of America, Philadelphia, Pa.

A. Norman Diecks, sales engineer, Rheem Manufacturing Company, 1209 E. 25th street, Baltimore, Md., attended Cornell University.

Maurice L. Ernsberger, research chemist, E. I. duPont de Nemours & Co., Inc., Wilmington, Delaware, a 1936 graduate of Ohio State University.

Clarence G. Hildson, vice president, Standard Cap Corporation, 150 Bay street, Jersey City, N. J., a 1920 graduate of Pratt Institute.

John R. Little, mechanical engineer, The Hinde & Dauch Paper Company, 407 Decatur street, Sandusky, Ohio, a 1934 graduate of California Institute of Technology.

Harold H. Maynes, special representative, Arkell Safety Bag Company, 10 E. 40th street, New York, N. Y.

John R. Murphy, Jr., pulp mill shift foreman, the Champion Paper & Fibre Company, Pasadena, Texas, a 1930 graduate of University of N. C.

Francis F. Newkirk, research director, The Sisalkraft Company, 205 West Wacker drive, Chicago, Ill., a 1924 graduate of Montana State College.

Charles Stevens, mechanical engineer, The Morrow Manufacturing Company, Wellston, Ohio.

Herbert G. Vore, chief chemist, American Seal-Kap Corporation, 11-05 44th drive, Long Island City, N. Y., a 1922 graduate of Manchester College.

Tests on Fiber Containers*

The Beach Puncture Tester

Sidney D. Wells[1], Arthur B. Kaplan[2], and Lewis R. Ayers[3]

Abstract

Complete tests of the flat liners and corrugating paper and of the corrugated board therefrom are compared with tests made upon the boxes fabricated from these components, which are taken to indicate performance in actual use.

Some tests, such as the flat crush, obviously indicate how well the corrugating material serves to hold the liners in position so as to follow the fundamental principles embodied in truss construction, which is the basic idea of the design. The ability of corrugated board to resist flat crush is usually much greater than any stresses encountered in loading up to failure, which generally results from some other weakness. Certain minimum strengths should be set, however, above which no corrugated board will fail by crushing, provided that the basic principles underlying the whole idea are adequately followed.

The bursting strength of the flat stock (either liner or corrugating paper) gives indications which yield information on the material used and are of value. To go beyond this, however, by extending the use of the bursting strength testers to the testing of built-up board is a questionable practice. The results are of doubtful value because they cannot be used with any assurance that they indicate in any way the probable performance or serviceability of the container made therefrom.

The puncture test on the built-up board, used as a means of ascertaining both toughness and stiffness, gave results which correlated reasonably well with the performance of the boxes made therefrom as indicated by the overall consideration of the compression, drum, and impact tests. In so far as the number of samples and tests and the scope of the studies under discussion justify, the puncture test seems to indicate all-around fitness to a higher degree than any one of the performance tests taken alone, and the value indicated seems to correspond with the integrated value of all three of the performance tests, with due weight being given to the relative importance of each test in indicating the serviceability of the container under consideration.

It is hereby acknowledged, however, that two series of tests (such as are herein discussed), extensive and time-consuming as they may be, are obviously inadequate for the establishment of fundamental principles or rigid rules for procedure, and that the studies should be extended to include every type and make of flat stock, adhesive, design, fabrication, and combination encountered in the industry.

There is under way at the Institute at the present time, as a part of the Instrumentation program which is being carried out under the auspices of the American Paper and Pulp Association, a fundamental study of the Beach puncture tester; a report on the findings will be presented to the industry as soon as they are available.

At the Annual Meeting of the Technical Association of the Pulp and Paper Industry in February, 1939, R. L. Beach *(1)* described an instrument designed to test corrugated and solid fiber boards so as to ascertain their suitability for the packaging and transportation of merchandise without damage either in transit or in storage. The instrument made use of the pendulum principle, and the work done in puncturing the board with a head made to simulate the corner of a box or a rectangular parallelepiped was taken as a measure of the stiffness and toughness of the board. Since the presentation of the paper referred to, the instrument has been used as a guide in the design and control of the packaging and boxing of the wide range of products made by the General Electric Company; so far as is known, however, there has been no move toward its adoption as an official testing method. Just now the importance of fiber containers in our war effort is vital and, consequently, it is more necessary than ever to have adequate testing methods. The industry has searched for over thirty years for reliable technical compasses to guide its course and during this period has expanded from an annual production of less than half a million tons to one of over eight million tons. Under the circumstances, it has not had time to be too much concerned about the anomalous and uncertain standards with which it works. We are now engaged, however, in a struggle for the life of our nation and the very principles for which we exist, and the proper design, selection of materials, and construction of the fiber container constitute an important component in the key to the successful outcome of this struggle.

An instrument to guide or to assist in guiding our effort in the fabrication of a container which will adequately protect our supplies until they reach our armed forces or our allies is urgently needed, and any information which will assist in finding such an instrument will be of service, no matter how inadequate it may be.

During the past seven months, there has been under way at The Institute of Paper Chemistry a series of tests and studies on two rather extensive groups of corrugated fiber containers made by two manufacturers. One of these groups consisted of samples from 18 combinations of liner and corrugating material, adhesive, and manufacturer's joint. In the other, 22 combinations of liner and corrugating material were made, using only one type of adhesive. In one or the other group, the three common types of flute were studied—namely, "A," "B," and "C" flute. The object of these studies was to obtain information to assist in the design of corrugated fiber containers, and to do so, substantially every type of testing instrument, machine, and method which had come to our attention was used. Among the instruments was the Beach

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[1] Member TAPPI; Research Associate, The Institute of Paper Chemistry, Appleton, Wis.
[2] Member TAPPI; Research Assistant, The Institute of Paper Chemistry, Appleton, Wis.
[3] Member TAPPI; Technical Assistant, The Institute of Paper Chemistry, Appleton, Wis.

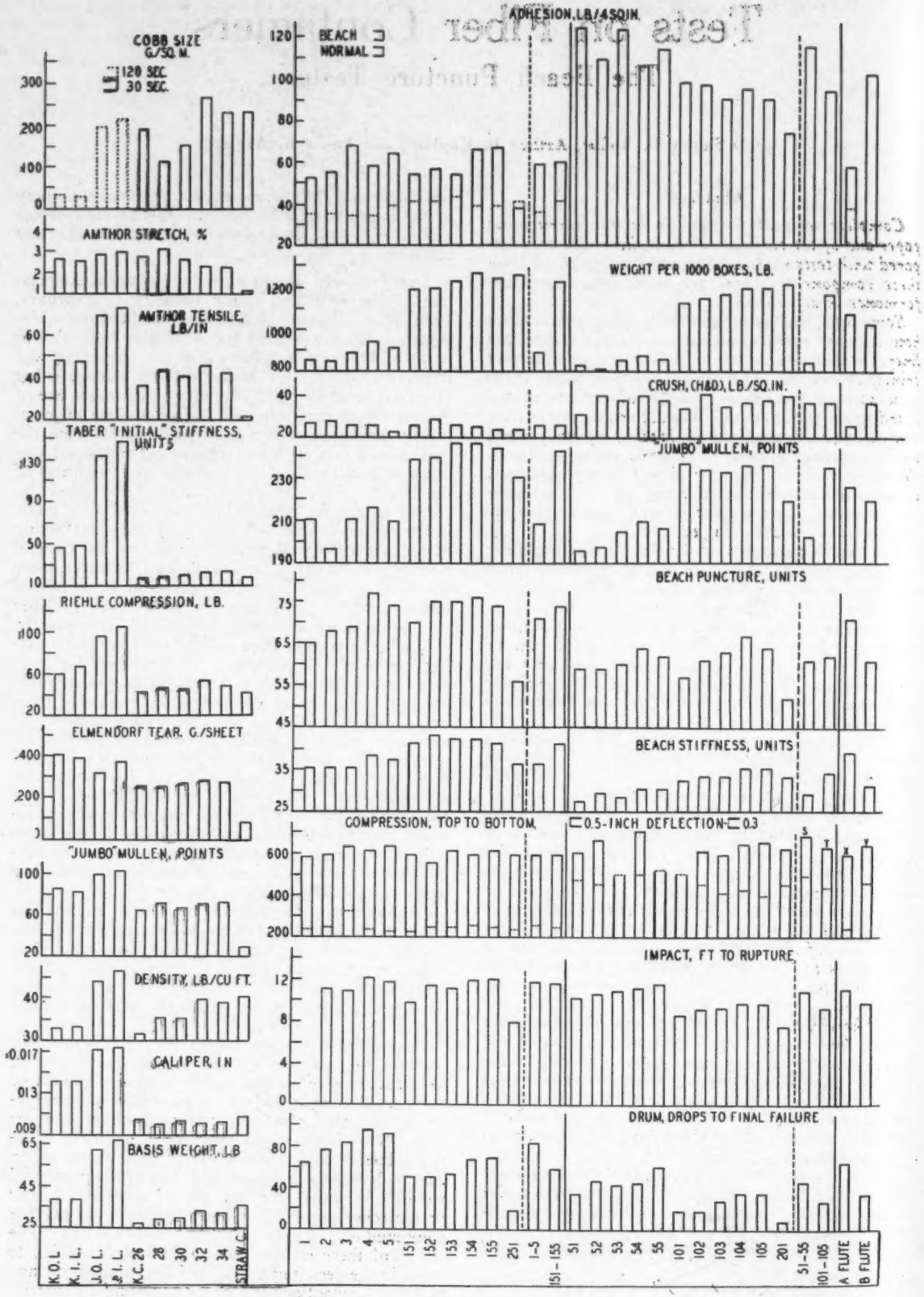

FIG. 1

Strength and Performance Tests, A and B Flutes. See following page for notes.

puncture tester, in the use of which some very interesting data were obtained.

We appreciate that fundamental rules for testing and interpreting results cannot be based upon data obtained from merely two groups of samples. The work has been sufficiently comprehensive, however, to warrant its reporting, especially at this time when container construction and testing are so much under discussion and so directly related to the effective prosecution of the war. In the future, it is hoped that there will be studies of many additional groups of containers made under equally comparable conditions by a sufficiently large number of container manufacturers from materials of various types so that, when the work is completed, it will be truly representative and there will be no doubt that the work has been entirely objective and is entirely conclusive. It is hoped that every type of material and method of fabrication will be given fair and adequate treatment. The work involved in such a program is enormous, and several years are obviously necessary to accomplish it.

These data are presented in the form of bar charts showing the tests on the uncombined material used for each group and, in addition, the performance tests of the containers, together with the various tests on the built-up boards from which they were fabricated. It is not the object of this paper to offer data with which to compare materials, their weights, or various types of flute, except in so far as they demonstrate the extent to which the instruments studied can be used to ascertain the ability of any containers under observation to render service. Figure 1 presents two series of bar charts giving data for the tests on the flat liners, the corrugating material, and the built-up boards, and the service tests on the boxes made therefrom. The samples were obtained from 21 separate runs of boxes at one plant. Figure 2 presents similar data on 18 runs of boxes made at another plant.

It is axiomatic that strength tests on flat boards will not necessarily indicate the quality of the boxes made therefrom or the care with which the containers were sealed after being filled. In the present studies, both the combining of the corrugated board and the fabrication of the boxes were carried out under constant supervision; great care was exercised in sealing. It is thus probable that some of the variables affecting box quality in regular production were not present in the samples tested.

The tests made upon the built-up boards were as follows:

Normal adhesion (*2*)
Beach adhesion (*3*)
H. & D. crush (*2*)
Bursting strength, "Jumbo" Mullen (*2*)
Beach puncture (*4*)
Beach stiffness (*4*)

The object of this study was to ascertain whether any of these tests, either singly or in combination with others, could serve to predict the performance which can reasonably be expected of the container made from the built-up board so tested. As a means for measuring the performance of the container, the following tests were made:

Compression test, top to bottom (*5*)
Impact test, Conbur tester (*6*)
Small revolving drum test (*7*)

The range of tests made upon the flat boards was as broad as possible in order to furnish every opportunity to evaluate the original material as completely as possible. Unfortunately, the amount of material used in the runs presented in Fig. 1 was not sufficient for all the tests which might have been made.

Top-to-Bottom Compression

From a study of Figs. 1 and 2, the conclusion seems justified that, in so far as the samples included in these tests are concerned, the C-flute boxes are stronger than either A-flute or B-flute boxes, in that they furnished a larger number of samples withstanding over a 650-pound force in top-to-bottom compressions at a deflection of not over 0.5 inch. A-flute and B-flute samples ranged mostly below this load at 0.5-inch deflection and, in the case of the B-flute boxes, many samples did not deflect as far as 0.5 inch without failure.

Small Revolving Drum Test

In the small revolving drum test, the A-flute boxes had a large representation among the toughest boxes. Over 60% withstood 58 drops or more without showing as much as a 6-inch tear. Only 1 out of 11 samples of the B-flute boxes was able to do so. Only 4 out of 18 samples of the C-flute boxes failed to meet this test; of the 14 samples that did so, 9 exceeded 140 drops.

Conbur Impact Test

The impact test, as practiced in these studies, consisted of filling the boxes with 70 pounds of smooth flint pebbles about the size of hen's eggs, and sealing them in the manner used for the compression and drum tests. After proper conditioning, each box was placed upon the carriage of the Conbur tester so that the end extended 2 inches beyond the lower edge, with the box resting upon its bottom. The top of the carriage was covered with paper-machine drier felt to prevent excessive wear on the wooden floor. The carriage was rolled up the incline until the lower end of the box was 6 feet from the bumper, and then released so that the end of the box made impact with the bumper. The next time the distance was 7 feet, and so on, adding one foot to the distance for each successive impact until failure resulted. Failure consisted of the first opening of the score line or flap completely through to the inside.

Notes to Figs. 1 and 2

Container used—Style R. S. C., can size No. 2 with no printing.
Approximate size—Length 13½ inches, width 10¼ inches, and depth 9⅛ inches.
Conditioning—Over 6 hours at 35% relative humidity or less, and then 24 hours' adsorption at 50% relative humidity and 73° F. for flat stock and knocked-down boxes; and 24 hours' additional conditioning for boxes after sealing.
Solid lines in Fig. 2, except where otherwise noted, are used to designate the average values for the inner and outer liners.
Dotted lines in Fig. 2, except where otherwise noted, are used to designate values for the corrugating paper.
"Jumbo" Mullen refers to bursting strength tests.
Basis weight refers to pounds per 1000 sq. ft.
Cobb refers to the water absorptiveness test on paper board.
Riehle compression values were obtained on specimens 6½ x ½ inch.
Score line burst and puncture tests were made on horizontal score lines.
Drum refers to tests in small revolving drum with six faces and running at 2 r.p.m.
Adhesion tests were made on specimens 4 sq. in. in area.
H. & D. (Hinde & Dauch) crush tests were made on specimens 5 sq. in. in area. The platen speed was 2.5 inches per minute.
Impact test (Conbur) was made on boxes loaded with 70 pounds of smooth flint pebbles (egg size). The first impact was made at 6 feet.
Compression tests were made with a platen speed of 0.5 inch per minute. "Load at 0.5-inch deflection" means average maximum load in going to 0.5-inch deflection.
Standard methods were used wherever available. Otherwise, tentative methods referred to in notes were followed.
The following notes apply to Fig. 1, deflection of 0.5 inch only:
S = average of 52 and 54
T = average of 102 and 104
X = average of 1, 2, 4, 152, 153, 154, 155, and 251
Y = average of 51, 52, 54, 102, 103, 104, 105, and 201
Runs 1-5, 151-155, and 251 A flute
Runs 51-55, 101-105, and 201 B flute

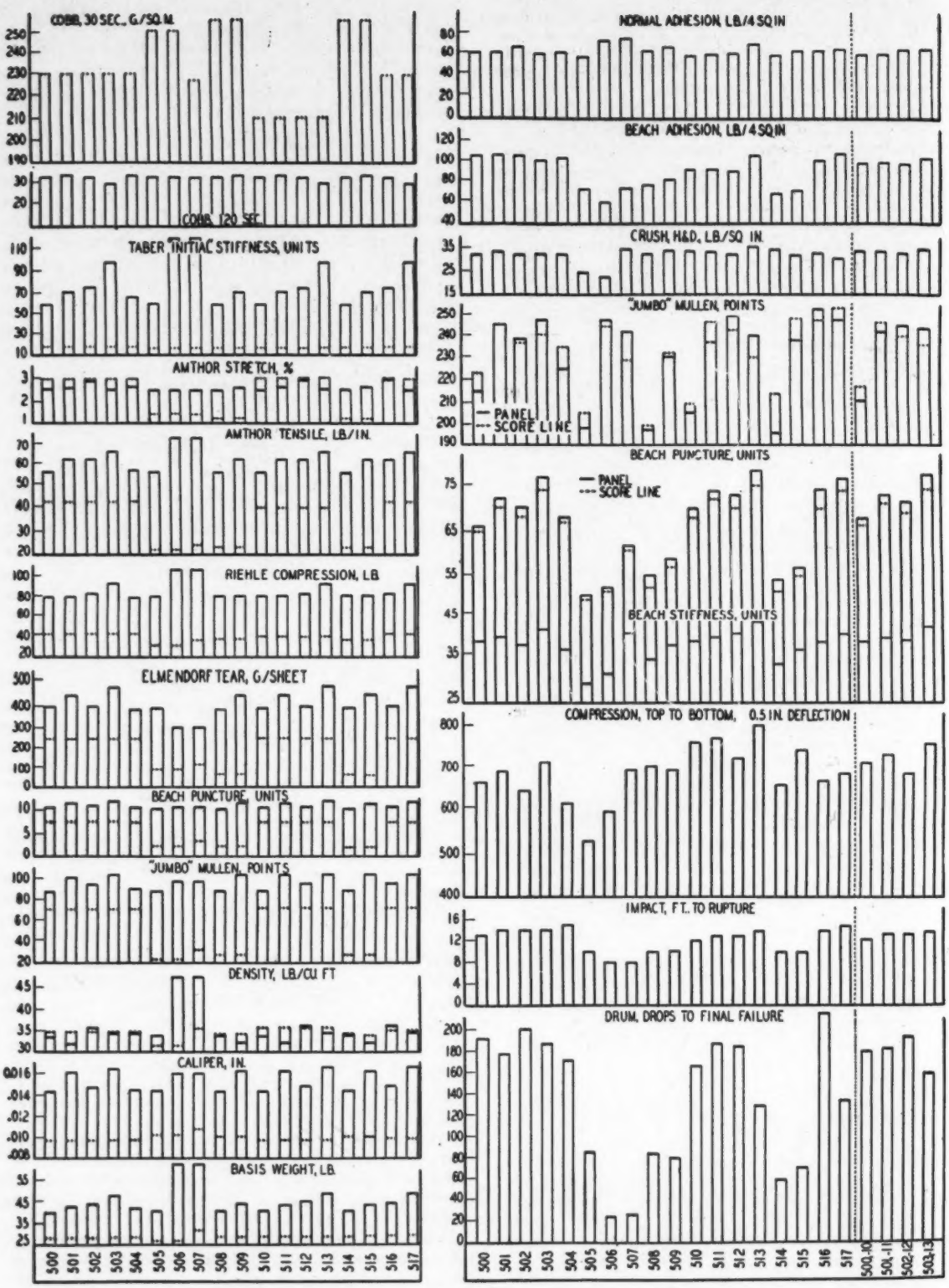
COBB, 30 SEC., G./SQ. M.
COBB, 120 SEC.
TABER "INITIAL" STIFFNESS, UNITS
AMTHOR STRETCH, %
AMTHOR TENSILE, LB./IN.
RIEHLE COMPRESSION, LB.
ELMENDORF TEAR, G./SHEET
BEACH PUNCTURE, UNITS
"JUMBO" MULLEN, POINTS
DENSITY, LB./CU. FT.
CALIPER, IN.
BASIS WEIGHT, LB.
500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517
NORMAL ADHESION, LB./4 SQ. IN.
BEACH ADHESION, LB./4 SQ. IN.
CRUSH, H&D., LB./SQ. IN.
"JUMBO" MULLEN, POINTS
PANEL
SCORE LINE
BEACH PUNCTURE, UNITS
PANEL
SCORE LINE
BEACH STIFFNESS, UNITS
COMPRESSION, TOP TO BOTTOM, 0.5 IN. DEFLECTION
IMPACT, FT.-LB. TO RUPTURE
DRUM, DROPS TO FINAL FAILURE
500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 500-10 501-11 502-12 503-13

FIG. 2

Strength and Performance Tests, C Flute. See preceding page for notes.

In the Conbur impact test, 8 out of 10 A-flute runs withstood 10 or more feet. Five out of 11 B-flute runs and 16 out of 18 C-flute runs did likewise. Consequently, it is apparent that the flute design used in corrugating paper has a considerable influence on the serviceability of the ultimate container.

Hinde & Dauch Flat Crush Test

The Hinde & Dauch crush test seems to indicate that fluctuation in the strength and serviceability of the containers is predicted only occasionally by the crush strength of the corrugated members. In many instances, where poor performance occurred, the crush strength was normal. In general, the A-flute boards gave crush strengths above 20, the B-flute boards above 35, and the C-flute boards above 30. Although the strength of this member is not often prominently reflected in the strength of the ultimate box, it is obvious that, when it is below a definite amount, the whole idea of corrugated box design is lost sight of, and a test of this character is essential to insure the realization of the benefits of lightness and strength which are sought. The test is straightforward and simple and will serve to guarantee the performance, at least, of the primary function for which the corrugating material is chosen.

The poor performance of B-flute boxes, in general, would seem to indicate that the relationship between the number of flutes and the height of the flute is important and that a larger number of lines of contact may not be so important in many applications as the height of the flute and a greater distance between the liners. Generalities are dangerous, however, but may serve to call attention to the need for more study.

Adhesion Tests

Adhesion tests were made from two points of view —namely, normal adhesion and the Beach adhesion test as developed by E. D. Beach of the General Fibre

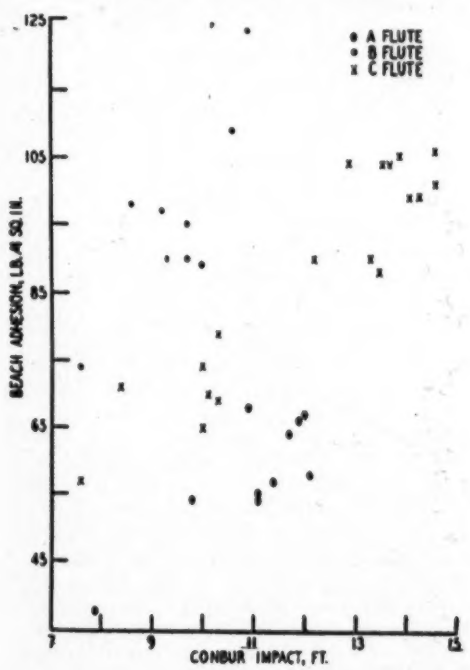

FIG. 3
Conbur Impact Test vs. Beach Adhesion Test

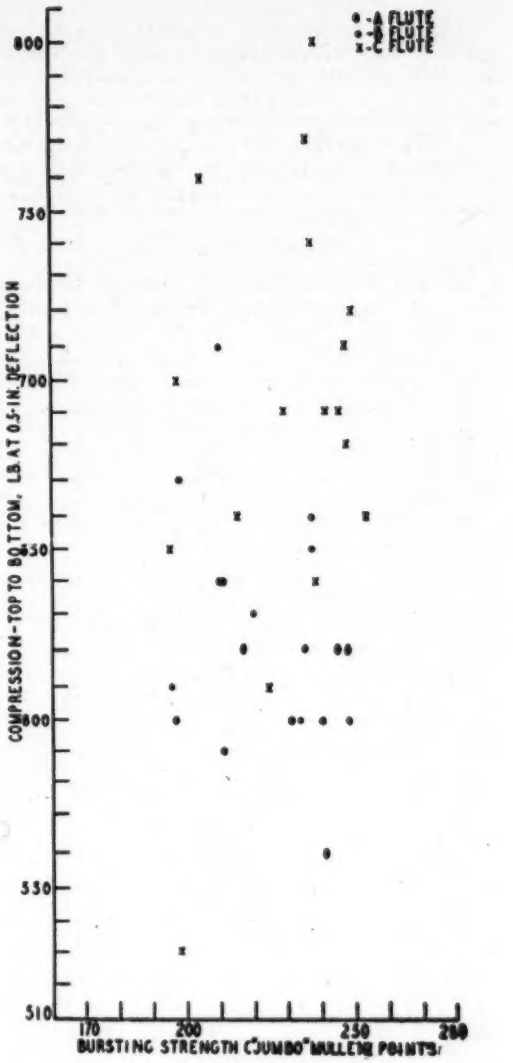

FIG. 4
Mullen Bursting Strength vs. Load in Top-to-Bottom Compression in Deflection to 0.5 inch

Box Company, Springfield, Massachusetts. In the normal adhesion test, the performance of the adhesive, affected as little as possible by the picking properties of the liner or corrugating paper, is obtained. This test was not performed on the B-flute samples because pins of proper stiffness to avoid deflection when made of the small diameter necessary were not available. Special pins are being sought to overcome this difficulty.

It is apparent that the normal adhesion test gives very little information on the performance of the boxes. As long as the tips of the corrugations have made proper contact with the liner, and there are no misses, the causes of failure are usually elsewhere.

The Beach adhesion test results do not parallel, to any observable extent, the results obtained normal to the faces of the board and the pick strength of the liners and corrugating paper evidently exert considerable influence. There is a fairly close correlation between the results obtained on the C flute (shown in Fig. 2) and performance as shown by the Conbur im-

pact test. This is much less apparent for the A flute (shown in Fig. 1) and still less for the B flute. In order to show the relationship more completely, the values for all flutes are plotted in Fig. 3. It is apparent that, in general, values obtained with the Beach adhesion test indicate the lowest impact resistance per unit with the B flute, a higher value with the C flute, and still higher value with the A flute. Here, too, the correlation with C flute is seen to be closer than for either A or B flute.

"Jumbo" Mullen Tests

The values obtained with the "Jumbo" Mullen tester are plotted against compression at 0.5-inch deflection in Fig. 4. It is apparent that there is no simple relationship between bursting strength of built-up board and the ability of the boxes made therefrom to resist compression. Figure 4 is as nearly a perfect example of no correlation whatever, as it is possible to picture. It is obvious from a study of the values obtained with

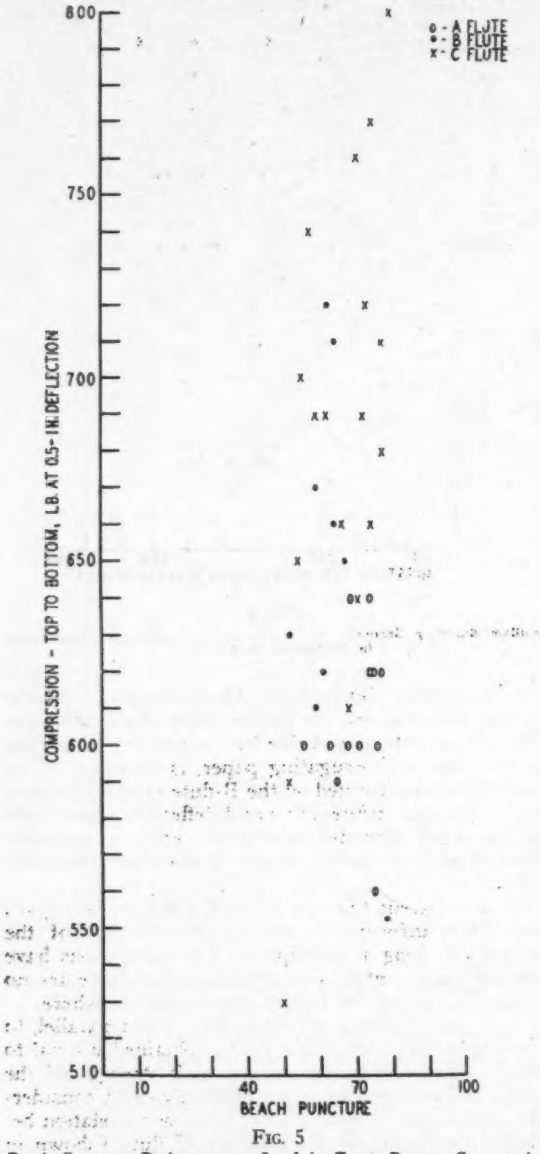

FIG. 5
Beach Puncture Resistance vs. Load in Top-to-Bottom Compression in Deflection to 0.5 inch

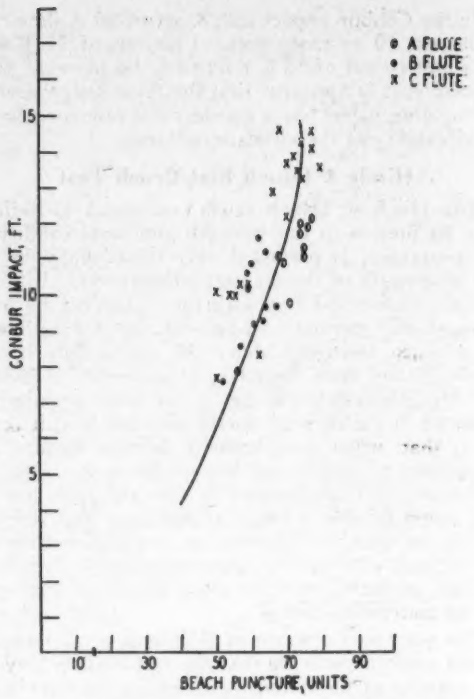

FIG. 6
Beach Puncture Resistance vs. Conbur Impact Test

the small revolving drum and the Conbur impact tester that the correlation of each with the bursting strength of the built-up board is even less than that of the latter with the strength of the boxes in compression.

Beach Puncture Tests

The values obtained on boxes tested in compression at 0.5-inch deflection, plotted against the values obtained with the Beach puncture tester, are shown in Fig. 5. The range in values of compressive strength for any value of puncture test is enormous, and it is obvious that many factors affect the results. There is no simple relationship between one test and another. It would be impossible to predict the compressive strength of a box from the puncture test only. It is noticeable, however, that the strongest box in compression gave the highest puncture test, and the weakest box gave the weakest test. It is furthermore noticeable that a line drawn from the point indicating the strongest box and the highest puncture test through the origin has substantially as many points fall on one side as on the other and that the points are distributed throughout the entire range shown in the graph. Eventually, if all other factors could be held constant, the compressive strength of boxes at 0.5-inch deflection would be found to be directly proportional to the Beach puncture test.

In Fig. 6 the relationship between the Beach puncture test and the Conbur impact test is shown. A straight line relationship does not exist, which is reasonable from the nature of the impact test. The points show a definite trend, however, which is indicated on the graph.

Figure 7 is presented to show the relationship between the values obtained with the Beach puncture test and the serviceability of the boxes, as indicated by their ability to withstand tumbling in the small revolving drum as measured by the number of drops be-

fore a tear over 6 inches long occurs. The points fall substantially on a line hyperbolic in shape, and it is obvious that a sufficiently low Beach puncture test indicates a box failing with one drop. A definite relationship probably exists.

The spread of values in either compressive strength, impact strength, or resistance to tumbling for any given puncture test value is too great to predict precisely what should be obtained in any one of the three types of box service. It is assumed that equal care has been observed in fabrication, packing, and sealing. Care in scoring is also assumed, although the use of the Beach test on the score lines, as well as on the panels, will serve to safeguard this point. Although the spread of values is too great to predict values, it may be possible to prevent boxes that lack certain minimum values from passing specifications. If the puncture test should give an indication of the resultant of all the forces and factors that contribute to the serviceability of the box, as indicated by compressive strength at 0.5-inch deflection and resistance to impact and to tumbling, it would be a useful guide for indicating better and more extensive service with fiber containers.

Beach Puncture Tests and Performance of Boxes

In order to ascertain how closely the Beach puncture test may be able to predict conformance to requirements for performance, the following conditions are stipulated:

Compression: Must support at least a 550-pound load at an average deflection of not over 0.5 inch.
Small revolving drum: Must withstand at least 30 drops before showing more than 6-inch tear or 33 drops to complete failure.
Conbur impact test: Must withstand impacts up to 11 feet before failure when loaded with 70 pounds of flint pebbles.

By specifying a Beach puncture test of 64 Beach units, every box that failed to meet the performance

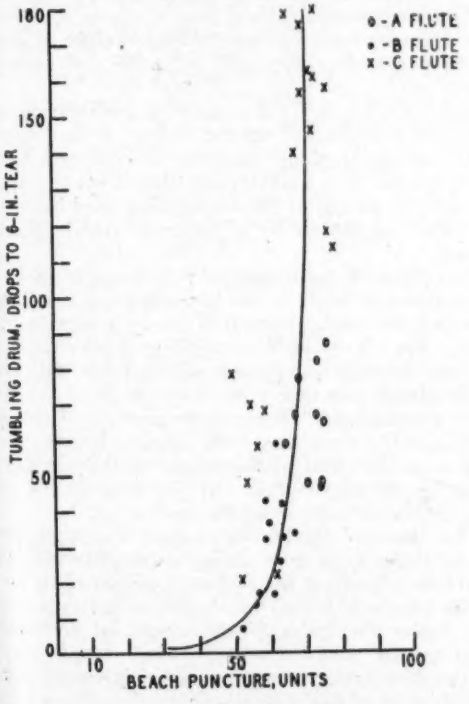

Fig. 7
Beach Puncture Resistance vs. Falls in Small Revolving Drum to 6-inch Tear

stipulated is eliminated with only two exceptions among the 40 samples—namely, No. 104 and 151. The compressive strength and the performance in the drum of these samples were excellent and they were deficient only by one foot in the impact test. Passing of two samples out of 40 which failed in performance by so small a margin does not seem so serious when it is considered that 13 were rejected and that, of those rejected, all but one failed to meet the performance requirements; the one that passed these requirements was seriously deficient in compressibility.

Of the samples rejected, the failures were as follows:

No. 51	Impact	No. 505	Impact and Compression
52	Impact	506	Impact and Drum
53	Impact	507	Impact and Drum
101	Impact and Drum	508	Impact
102	Impact and Drum	509	Impact
103	Impact and Drum	514	Impact
201	Impact and Drum	515	Impact
251	Impact and Drum		

Eight of the rejected samples failed in performance in two out of three ways. The samples accepted by the Beach puncture test but which failed to perform sufficiently well in the Conbur impact test were both made of jute liner, one being a B flute and the other an A flute; 32-pound corrugating was used for the B flute and 26-pound corrugating for the A flute.

No. 55 was rejected even though the requirements of performance were met. None of the boxes from this sample, however, was able to reach a deflection of 0.5 inch without failure. This indicates inability to withstand stacking and a just reason for rejection.

By lowering the Beach puncture test specification to 53 Beach units, the number of rejects was lowered to three samples which showed the following failures in performance:

No. 201 Only 9 drops in drum and 8-foot impact test.
505 Low compressive strength.
506 Only up to 8-foot impact test.

All of the samples, with the exception of No. 251 and 507, withstood the following performance requirements:

Compression: At least 550-pound load, with an average deflection of not over 0.5 inch.
Small revolving drum: Must withstand at least 17 drops before exceeding a tear of 6 inches or 19 drops to failure.
Conbur impact test: Must withstand impacts up to 9 feet before failure when loaded with 70 pounds of flint pebbles.

Of the exceptions, No. 251 went 14 drops to 6-inch tear and 18 drops to failure in the small revolving drum test and failed with an impact of 8 feet in the Conbur impact tester, and No. 507 failed only in impact. Failure to reject two samples which barely missed meeting requirements, out of the 40 samples included in the studies, is not a bad performance. The sample passed was made of jute liner and straw corrugating paper.

It is apparent from these tests that, in so far as is warranted by the extent of the studies, the Beach puncture test gives promise of offering a means of specification which will select boxes that will meet both moderate and severe requirements for performance.

Evaluation of the Components Included in the Puncture Value

In view of the apparent possibility of using the Beach puncture tester to test board so as to give an integrated value from the standpoint of combined strength in compression, resistance to tumbling, and resistance to impact for the boxes made therefrom, Fig. 8 is presented to show the components into which

the values for puncture of the board from the series presented in Fig. 2 may be broken down. The values for the puncture of the samples of the flat sheets from which the built-up boards are made are also shown in Fig. 8, together with the summation of two times the average puncture of liners and the puncture value of the corrugating paper. The stiffness component was also obtained, using the method suggested by Beach *(4)*. Finally, the values for puncture of the built-up boards on the score lines and on the plain panels, are presented. It is evident from a study of this graph that the values obtained by this test develop in a very orderly and logical manner; in no instance is the value on the score line greater than the value for the panel; nor is the value for the built-up board ever less than the sum of the values for the component parts into which the value may be broken down. Experience with the bursting strength testers is not so satisfactory.

An important feature of the Beach puncture tester is the possibility, by use of the two techniques suggested, of dividing the value into the two components that combine to make up the test, namely, stiffness and toughness, as manifest by the difference between the stiffness and the total value for the puncture. This value is closely related to the tearing properties of the flat boards from which the built-up boards were made. The Elmendorf tearing tests on these flat boards give a measure of this property, and analysis of the values presented in Fig. 2 shows that they are substantially proportional to the toughness as derived from the difference between the values for total puncture and the stiffness values obtained on the Beach tester.

It is generally recognized that the compressive strength of containers under static load calls for properties reflected in the stiffness of the members in the same manner as in a column. Ability to resist buckling is the major factor. In the tumbling drum, ability to withstand shock and wear is of prime importance and toughness is the property largely being measured. In the impact tests, toughness in combination with stiffness are the properties being measured, with toughness preponderant. It seems to be a fact that both toughness and rigidity are involved and integrated in the Beach puncture tester, and this is why it is apparently so successful in selecting the boxes that gave the specified service in the studies under discussion, and in eliminating those that did not.

The Beach Puncture Test as an Aid to Design

The primary purpose of many of the box-making

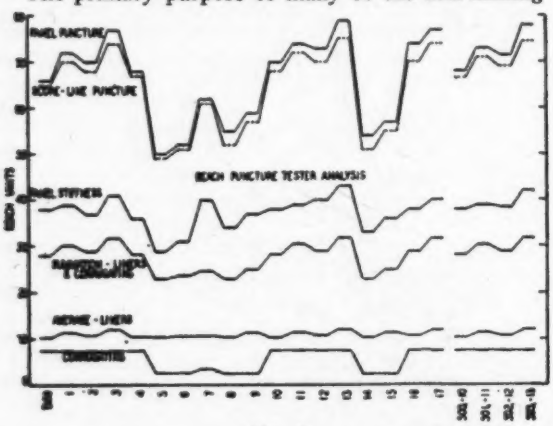

Fig. 8

Quantitative Presentation of Components of Beach Puncture Test

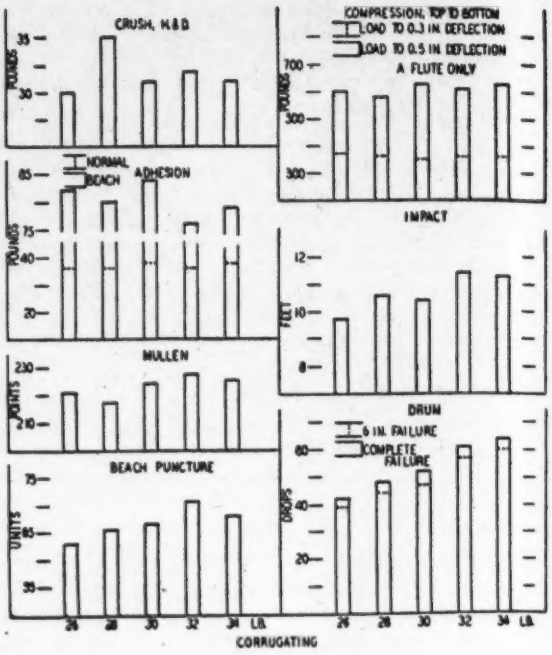

Fig. 9

Effect of Weight of Corrugating Paper on Strength and Performance

runs from which the samples reported upon in Fig. 1 were taken was to ascertain the effect of various weights of corrugating paper used in the fabrication of built-up boards on the serviceability of the boxes made therefrom. Figure 9 shows the graphical presentation of these results. Runs using nominally 26, 28, 30, 32, and 34-pound corrugating paper and nominally nine points in caliper, were made in four series. The averages for each test for each weight of corrugating paper were averaged, regardless of liner and flute.

It is obvious that the weight of corrugating used has a profound effect on the ability of the boxes to stand up under usage such as is indicated by the drum tester. It is furthermore almost equally apparent that the weight of the corrugating used has a similar effect on the ability of boxes to stand up under impact.

The effect of the weight of the corrugating on the compressive strength of the box is not a major factor, provided its crush strength is above a certain minimum value. Very little corrugating paper that is recognized as being satisfactory will be below this value.

The Beach puncture tester gave results that reflected to a remarkable degree the composite of the indications of the three serviceability tests herein considered as to the effect of the weight of the corrugating paper on the serviceability of the boxes made from built-up boards containing the same.

The "Jumbo" Mullen tester showed a slight trend, but so slight as to give a very inadequate indication as to how important the factor of weight could be.

The Hinde & Dauch crush test reflect to a noticeable degree the effect of the weight of corrugating paper on the performance of boxes. The crush test for the 28-pound corrugating paper, however, is considerably out of line with all of the others in each combination in which this paper was used. This paper had an unusually high bursting strength (expressed

in points per pound per ream), as can be seen by reference to Fig. 1. This unusually high specific bursting strength was obtained without a correspondingly high specific density. This unusual combination of physical properties shows its effect in the Hinde & Dauch crush test of the built-up boards; and this, in turn, in the Conbur impact test, so as to render the service performed, as manifest by this test, greater than would be expected from the performance of the boxes in which the other weights of corrugating paper were used. It would seem that, by the use of the flat crush test and the Beach puncture test, a fairly complete measure of the factors involved is presented.

So far as they go in comprehensiveness and scope, these studies seem to indicate that the Beach puncture tester, and the methods used to break down the values obtained into stiffness and toughness, give promise of being a useful tool for ascertaining the importance and the magnitude of various elements of design, material, and fabrication on the serviceability of fiber containers.

Accuracy of Data and Soundness of Conclusion

The apparent possibility of using the Beach puncture tester as a means for selecting serviceable fiber containers and for rejecting those that are not has been discussed above. The possibility of using the instrument as a means for evaluating the effect of various elements and factors in the design of fiber containers has also been suggested. The reproducibility of measurements made with the Beach puncture tester and the other instruments and tests used in these studies will now be discussed.

In ascertaining the precision of measurements, it can be proved by the method of least squares that the accuracy of the results obtained is proportional to the square root of the number of readings made. The degree to which the sample taken from a given lot or run is truly representative of the run is also similarly proportional to the square root of the number of specimens taken. Furthermore, the degree to which the effect of a given factor under consideration (where reasonable efforts are made to keep all other factors constant) is reflected in the tests for evaluation of serviceability, is also proportional to the square root of the number of runs made.

It is also possible to ascertain the limits within which it is certain that the indication obtained through any series of samplings and measurements truly reflects the influence of the factors being studied.

Since it is economical to make only a limited number of tests to measure a certain property, the arithmetical average of the readings taken will differ from the true value by a certain deviation. The magnitude of the deviation is dependent upon the inherent nonuniformities in the sample itself as demonstrated by the instrument which is used, the irregularities inherent in the instrument itself, and the number of readings taken. To determine the true value or mean by measurement alone would, in most cases, require an enormous number of tests. Fortunately, the deviation of the average value from the true mean can be determined by statistical methods and may be expressed as the standard error of the mean or σ_m. Using the Peters' approximation formula as a basis the standard error may be calculated by means of the following formula (8):

$$\sigma_m = \frac{0.8453}{N\sqrt{N-1}} \times \frac{\Sigma|X|}{0.6745}$$

where $\frac{0.8453}{N\sqrt{N-1}}$ may be readily found in the mathematical tables and

σ_m = standard error of the mean,
$|X|$ = the deviation of the individual value from the arithmetical mean, without regard to sign, and
N = number of readings used in computing the arithmetical mean.

The standard error of the mean, where 30 or more readings are taken, may be interpreted as follows: The chances that the true value, if known, would fall within ± 1 standard error from the arithmetical mean is 68 times out of 100; within ± 2 standard errors, 95.5 times out of 100; and within ± 3 standard errors, 99.7 times out of 100. Where only 15 readings are taken, the chances that the true mean will be as close to the arithmetical mean are somewhat less.

It is illuminating to calculate the standard error for each of the tests made on both series, because, if good sampling is assumed, it is possible to determine from these values the significance of the test data and the number of tests that should be taken to reduce the error as far as is economically possible. The average percentage standard error was determined for each test, and the number of readings made per test and the number of averages included in calculating the average percentage standard error are shown in Table I. It must be stressed that these statistical data assume perfect random sampling within the sample submitted, a precaution that was actually followed in selection of the test specimen. In selection of the sample lots themselves, an attempt was made to use representative stock together with good manufacturing technique.

TABLE I

Test	Series I			Series II		
	Standard Error, %	No. of Groups in Av.	Standard No. of Tests per Group	Standard Error, %	No. of Groups in Av.	Standard No. of Tests per Group
Drum Test						
Drops to failure	8.0	22	15	7.8	18	15
Drops to 6-inch tear	9.2	22	15	8.3	18	15
Bursting Strength, Panel ("Jumbo" Mullen)						
Score line	1.4	22	40	2.0	18	20
Beach Puncture				2.1	18	20
Panel	0.9	22	40	0.8	18	40
Score line	...	...	...	0.9	18	40
H. & D. Crush Test	1.7	22	20	1.5	18	20
Compression, Top to Bottom						
0.3-inch deflection	2.3	22	15	3.6	18	15
0.5-inch deflection	2.5	22	15	2.0	18	15
Normal Adhesion	2.3	11	20	1.8	18	20
Beach Adhesion	4.0	22	20	3.8	18	20
Impact Tests	3.8	21	10	3.9	18	10

Examination of Table I reveals the fact that the standard error for the drum test is very high. Ordinarily, errors such as these would lead to the abandonment of any test to which they belonged. With this test, however, the range of the results extends from 9 to 213, or 2270% greater than 9. With this wide range there are several zones, which do not overlap, which might be expressed in terms of box quality, as follows:

Below 17 drops—Worthless
17 to 30 drops—Mediocre
30 to 45 drops—Satisfactory
45 to 95 drops—Very satisfactory
Above 95 drops—Superior

These terms, of course, do not apply to all uses to which the boxes might be put; the dimensions, weights, or character of the contents must be taken into consideration in interpreting the results. They are used merely to illustrate the significance of the results and the clear differentiation possible, even

though there is a large standard error, provided the range is sufficiently large.

The standard errors present in the bursting strength, on the other hand, are quite low—namely, 1.4% for one series where 40 readings were taken, and 2.0% for the other where 20 readings were taken. The range of the tests ran from 195 to 253, which is less than 30% of the lower value. The extent of the error with this range is sufficient to enable interpretation of the data, provided there is some correlation between bursting strength of the built-up boards and the service of the boxes made therefrom. If there is any correlation, it is difficult to observe where it occurs and it is much more obvious to observe that in some cases the information given by the burst strength would lead to the use of board which made very bad boxes and in others to the rejection of board from which very good boxes were made. To be specific, lots 101, 201, 251, and 506 are very poor boxes made of high-test board, and lots 2, 52, and 510 are very good boxes made of low-test board. The bad boxes were made using just as much care and supervision as was used in making the good boxes.

Not only do the results obtained with the Beach puncture tester coördinate most closely with the serviceability of the boxes, but the standard error is remarkably low—namely, 0.9% and 0.8% for the two groups. The effect of such remarkable accuracy, combined with close correlation with actual experience in service, indicates a sound basis upon which inspection and interpretation can safely rest.

Each range of error for the other tests is readily discernible from inspection of Table I. The number of tests necessary to reach valid conclusions may be greatly reduced where accuracy such as is characteristic of the Beach tester occurs. Reduction from 40 to 10 readings will increase the standard error from 0.8% to 1.6%, which is still less than the error obtained with the bursting strength determination of 2.0% when 20 readings were made. It therefore seems to be apparent that 10 readings with the Beach puncture tester will give sufficient information on any run of built-up corrugated board for intelligent evaluation or specification, provided the sample taken is truly representative of the lot of boxes made therefrom.

Certain questions might well be asked at this point. How significant are the test data presented? How can one infer, from the limited series of tests made, that other like boxes will perform in a similar manner? Was the stock used in these series of boxes inferior in some way which would not show up in the testing? Was there something faulty in the construction of these boxes which was not revealed in the testing? These questions, and many more, are perfectly legitimate, and should be asked. Their answers lie only in continued investigation and constant coöperation of the industry in submitting many more samples for evaluation. If the trend of these tests is repeated many times in future work, greater significance can be attached to these trends and more information will be available for correlating laboratory testing with actual performance. Here is an opportunity for the industry to develop an enlightened technique to predict how a box will perform in service.

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Wm. L. Batt Gets Bok Award

William Loren Batt, vice-chairman of The War Production Board and president of S. K. F. Industries, Inc., Philadelphia manufacturers of ball and roller bearings, has been awarded the Bok Award—a medal and a $10,000 check—not only for his service to the Nation in leading industrial mobilization of the war, but as a citizen who performed the most distinguished service for Philadelphia in 1942. This award is the twenty-first since its inception by the late Edward W. Bok in 1921.

Since graduating from Purdue University in 1907, Mr. Batt has been the recipient of many outstanding honors. Purdue awarded him the degree of Doctor of Engineering in 1933, and this year the Stevens Institute of Technology conferred upon him an honorary degree of Doctor of Engineering, The Drexel Institute of Technolnogy awarded him the honorary degree of Doctor of Science, and the University of Pennsylvania conferred the honorary degree of Doctor of Science.

In 1926 King Gustav of Sweden conferred upon him the Order of Vasa, and in 1933 the Order of the North Star for cementing American-Swedish relations. In September, 1941, President Roosevelt appointed him as a special member of the American Mission to the British-American Soviet Conference in Moscow.

Mr. Batt is president of the International Committee of Scientific Management and past-president of The American Society of Mechanical Engineering. In addition, he is chairman of the board of the American Management Association, and past-chairman of the Business Advisory Council for the Department of Commerce.

To Hold Joint Meeting At Appleton

At a joint committee meeting held March 24 at the Conway Hotel in Appleton, Dick Radsch was appointed convention chairman and plans were laid for a one day spring meeting at TAPPI and the Northwestern Division of the American Pulp and Paper Mill Superintendents' Association to be held on May 22 with headquarters at the Conway Hotel.

Because of current conditions, a condensed program is being shaped which will stress the major problems of wartime operation. The committee believes that the spring meeting is today more important than ever before and hopes to give those attending a program which will make their time more than well spent.

John V. Zimmerman, chairman of the Northwestern Division states that "while the ladies are being left out of our plans this year because the problems involved in carrying on the usual social functions would be too great and not in keeping with the times, we look forward to the time when we can again combine more pleasure with the meetings and again have the wives with us."

James W. Hemphill Honored

James W. Hemphill, staff manager of the Pulp and Paper Industry Department of Johns-Manville, was honored on March 18 by his associates at a luncheon which marked the completion of his 25 years with the organization.

At 50 Mr. Hamphill has spent half of his lifetime with Johns-Manville, starting in the Pittsburgh office, then to Cleveland from whence he was promoted to General Headquarters at New York, where he also acts as assistant manager of the packing and power specialities department.

During the luncheon at the Murray Hill hotel, Mr. Hemphill was inducted into the J-M Quarter Century Club, honor society of the company's employees of twenty-five or more years of service. L. R. Hoff, vice-president of the company, presented Mr. Hemphill with a gold watch emblematic of membership in the club. The Quarter Century Club, founded in 1929 by J-M's president, Lewis H. Brown, now has a membership of 639 with 496 on the active list.

Mr. Hemphill is a member of the University Club of Cleveland, the Masonic Lodge, and the Delta Tau Delta fraternity. When not too busy on J-M problems he gives his time to gardening and wildlife studies and an occasional game of paddle tennis. He is married and lives at Glenville, Conn.

Twine Committee Reports

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., March 29, 1943—The report of the Cordage and Twine Committee, A. H. Holmes, chairman, and A. F. R. Cook, vice-chairman, given at the annual meeting of the New England Shippers Advisory Board at Hotel Statler, is as follows:

"Any forecast made at this time for the Cordage and Twine Committee can be but a rough estimate as there are so many uncertainties confronting us. If raw materials come through as we hope they will, enabling us to keep up our production program at the various industries involved, the picture looks as follows:

"Our combined tonnage for the second quarter of 1943 should exceed that moved during the corresponding quarters of 1942 by 15 per cent, while the tonnage we anticipate moving during the third quarter of 1943 should exceed the corresponding quarter of 1942 by 20 per cent."

Container Corp. Gets Army-Navy "E"

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, March 29, 1943—One of the first Army-Navy "E" Awards to be bestowed in the paperboard and paper box industry was announced today, the recipient being the Philadelphia plant of Container Corporation of America.

The award covers outstanding production of paperboard and the corrugated and solid fibre shipping cases and folding cartons used in packing war material for shipment from factory to assembly plant, to shipping points and to the 80 locations throughout the world where American fighting men are stationed.

Announcement of the award came from Undersecretary of the Navy James V. Forrestal.

The actual presentation ceremony date has not yet been set.

American Wringer Opens New Division

The American Wringer Company, Inc., Woonsocket, R. I., manufacturer of the well-known Tensilastic rubber rolls has established a new department known as the Tensilgrip Rubber Lining Division, in order to better facilitate the production of that branch of the business. Heretofore, the covering and lining of metal equipment with Tensilgrip rubber or synthetics was under the supervision of the Mechanical Roll Division where the Tensilastic rubber rolls for the paper and textile industries were produced.

The lining of equipment, such as vats, tanks, pipe, valves, agers that are subjected to the ravages of corrosive chemicals or their fumes is not new to this company. But with the need for protection of critical metals, the American Wringer Company is making a concerted effort in the lining field.

About a year ago it added another large vulcanizer in order to give better service in this class of work. The company's experience covering a period of 51 years of rubber specialization—the compounding of rubber to meet a wide variety of conditions in the paper, textile, tanning and steel industries has proved valuable in the compounding of rubber for the covering and lining of equipment.

The laboratory of the American Wringer Company will gladly give the benefit of its experience to any concern having corrosive trouble.

Pertinent Paper Facts

"Pertinent Paper Facts", by Dewey Elish, just published by M. M. Elish & Co., 29 Beekman street, New York, at $2 a copy, is a manual of information on paper.

It differs from most books on paper, which are mainly directed to supply technical and manufacturing information. This volume, written by a paper distributor, is well stated to be a guide intended to aid in the selection of suitable kinds of paper for printing, writing, advertising and office uses.

The contents include a brief consideration of the typical characteristic qualities of different types of commercial papers and the basic considerations entering into the selection of proper papers for specific uses, such as book, bond and writing, bristols, etc.

Repair Started To Reopen Mill

WARRENSBURG, N. Y., March 29, 1943—Several employees of the Ashland Paper Mill Inc., which recently purchased the plant of the Schroon River Pulp and Paper company, at a receiver's sale, are here preparing the plant for an early opening.

Local Contractor Richard B. Lewis, has a force of carpenters at work on the buildings making repairs.

The mill when under full operation some years ago furnished employment for 100 to 125 men.

St. Joe Paper Co. Honors Service Men

PORT ST. JOE, Fla., March 29, 1943—The St. Joe Paper Company has installed on the front of its office building a handsome glass-covered frame containing the names of all men in its employ who are serving with the armed forces.

Among the 176 names on the honor roll there are five captains, two first lieutenants, three second lieutenants and one ensign.

New York Paper and Pulp Market Review

No Further Cut in Consumption of Newsprint Paper is Now Expected on July 1—Pulp Market Active in All Grades—New Cotton Rags at Ceiling Prices—Waste Paper Market More Quiet.

Office of the PAPER TRADE JOURNAL.
Wednesday, March 31, 1943.

Demand for many kinds of paper continues to be reported at a relatively high level. Reports received this week from some of many manufacturers' representatives, jobbers, and general paper merchants, indicate more clearly the trend toward a more stabilized level of production and distribution. It is expected in some quarters that this trend will become more marked in the near future.

The index of general business activity for the week ended March 20 rose to 137.0, from 136.6 for the preceding week, compared with 133.8 for the corresponding week last year. The index of paper board production was 148.1, compared with 145.5 for the previous week, and with 168.3 for the corresponding week last year.

Paper production for the week ended March 20 was estimated at 88.4%, compared with 103.6% for 1942, with 91.7% for 1941, with 85.0% for 1940, and with 84.1% for the corresponding week for 1939.

Paper board production for the week ended March 20 was 92.0%, compared with 101.0% for 1942, with 82.0% for 1941, with 70.0% for 1940, and with 73.0% for the corresponding week for 1939.

Further curtailment in the consumption of newsprint may occur in the future but the factual situation at this date, as has been stated, does not now warrant the assumption of a further decrease on July 1. An adequate supply of paper for all necessary requirements also seems to be assured, despite some contrary rumors and reports.

New ceiling prices for distributors of several hundred paper products were established by the Office of Price Administration under Maximum Price Regulation 349, effective May 21, 1943. This new regulation does not change the general price level under the General Maximum Price Regulation, using March 1942, as the pricing base. It does simplify the procedure of pricing. Folding and set-up boxes, wrapping, packaging, insulating, sulphite, sulphate, parchment, greaseproof, glassine, drinking cups, egg cartons, facial tissue, napkins, dishes, spoons, straws, shirtboards, and a long list of other paper items are included.

Wood Pulp

Although current demand for all grades of chemical wood pulp is reported heavy, supply for this year is quite widely reported to be expected adequate for the production of all types of paper necessary under the controlled civilian economy now in operation. Some further curtailment in paper consumption and production, estimated at about 10% below the current rate, is looked for in some quarters. The general opinion appears to reflect the view that there will be sufficient wood pulp to supply all the paper required in a nation at war.

Rags

New cotton cuttings are reported in moderate demand at this date. No. 1 white shirt cuttings are currently quoted at the ceiling price of 7.25 per cwt., and new unbleached at the same figure. All prices are firm.

Trading in old cotton rags is active under a good volume of mill buying. The roofing grades are in heaviest demand.

Old Rope and Bagging

Demand for old No. 1 Manila rope continues steady. Prices on other grades of cordage and twine are firm and generally conform to maximum prices.

The scrap bagging market is steady under the influence of limited supplies. More activity is looked for in some quarters in the near future.

Old Waste Paper

Less activity is reported in old waste paper at this date. Mill buying is, however, steady, with no change in prices on No. 1 mixed, and on folded news. Old corrugated boxes are reported in more active demand, with sales reported at the ceiling price of .82¼ per cwt.

Twine

Demand for twine and cordage is heavy, with most manufacturers unable to accept further orders until backlogs are reduced. Prices are firm and unchanged.

Trade More Stable in Philadelphia

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., March 29, 1943—Activity in the paper trade is more or less stable despite the restrictions on the use of newsprint effectiv April 1. Large consumers and publishers of magazines who have been compelled to reduce their consumption by 10% are resigned to their lot, although they feel that there will be some recalcitrant merchants who will have to be forced into line to cooperate with the remainder of the trade. Consumers of all kinds of paper, particularly book and news, have been operating so cautiously that the market is really in a healthy condition, that is to say not any one has an excess on hand and all special offerings are quickly absorbed. For this reason, if prices advance as they probably will, it will bring about a general feeling of optimism.

With prices for paper stock moving up to almost ceiling heights, there is no great amount coming in and the demand is equal to the supply. No perceptible excitement prevails over the mounting prices, and because of the curtailment of collections due to labor shortage, the mills do not feel any great anxiety to buy.

TILE CHESTS *Built to your Requirements*

KALAMAZOO tile chests can be built to your exact requirements for stock storage and bleaching. The vitrified glazed tile, made in our own tile plant, is impervious to all ordinary stock fluids and is suitable for storage of liquid alum. The smooth surface is cleaned easily and quickly with hose. Your installation can be designed for adaptation to pump delivery and agitation of any type. Our manufacturing facilities and years of experience with the paper industry are geared for immediate attention to your individual requirements. Write for complete information about prompt delivery and carefully supervised installation.

BUY WAR BONDS

So satisfactory was the first 37-foot Kalamazoo Glazed Tile Chest installed for the Sorg Paper Company, Middleton, Ohio, that they have recently added two more. All are adapted for Shartle Bros. "Agi-Flow."

GLAZED TILE

KALAMAZOO TANK & SILO CO.

KALAMAZOO, MICHIGAN

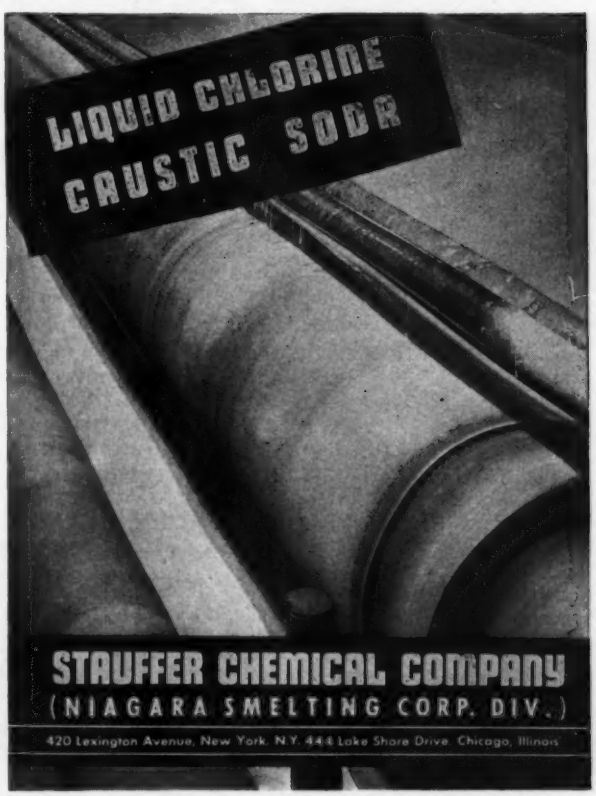
WOOD

More than just a **TRADE MARK**

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 78 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

KNOX WOOLEN CO.
CAMDEN, MAINE.



STAUFFER CHEMICAL COMPANY
(NIAGARA SMELTING CORP. DIV.)
420 Lexington Avenue, New York, N.Y. 444 Lake Shore Drive, Chicago, Illinois

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, March 31, 1943.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported good for the week. Bleaching powder is currently quoted at $2.50 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are unchanged for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 19 cents per pound; 80-100 mesh, at 19½ cents per pound. All prices in bags, car lots.

CAUSTIC SODA—Quotations on caustic soda continue unchanged at prevailing market prices. Demand reported moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filled clay is currently quoted at from $7.50 to $15 per ton; coating clay from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market strong. Government demand is reported heavy during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with lower prices on some grades. "G" gum rosin is currently quoted at $3.54 per 100 pounds, in barrels, Savannah. "F" wood rosin is currently quoted at $3.47 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is currently quoted at $3.73 per 100 pounds, f.o.b., works.

SALT CAKE — Prices on salt cake are firm. Demand moderate for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported good for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90, in paper bags, $1.05; and in barrels, $1.35.

STARCH — Prices on corn starch are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, carlot, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported light for the current week. The commercial grades are currently quoted at from $1.15 to $1.25; iron free at from $1.75 to $1.85 per 100 pounds. All prices in bags, carlots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue to conform to prevailing market prices. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby carlots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	*$54.00	@	—
Sheets	62.00	"	—
* OPA Maximum Price.			
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	$5.00	@	—
No. 1 Wrapping	4.75	"	—
Standard Wrapping	4.50	"	—
Standard Bag	4.125	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.16	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@$15.50
No. 2 Glossy Coated	12.40 "	14.00
No. 3 Glossy Coated	11.60 "	13.25
No. 4 Glossy Coated	11.15 "	12.75
No. 1 Antique (watermarked)	10.25 "	11.75
No. 2 Offset	9.60 "	11.00
A Grade E. F.	9.35 "	10.75
A Grade S. & S. C.	9.60 "	11.00
B Grade E. F.	8.85 "	10.25
B Grade S. & S. C.	9.10 "	10.50
C Grade E. F.	8.55 "	9.75
C Grade S. & S. C.	8.80 "	10.00
D Grade E. F.	8.25 "	9.50
D Grade S. & S. C.	8.50 "	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	65.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags (Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	*7.25	@	—
Silesias No. 1	*5.75	"	—
New Unbleached	*7.50	"	—
Blue Overall	*5.50	"	—
Fancy	*3.50	"	—
Washables	*3.00	"	—
Bleachable Khaki Cuttings	*4.25	"	—
Unbleachable Khaki Cuttings	*3.50	"	—

* OPA Maximum Prices.

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Wood Pulp & Paper Agents

60 East 42 Street
New York. N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light	4.25	"	4.50
Wool Tares, heavy	4.50	"	4.75
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	4.25	"	4.75
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	1.00	"	1.20

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.57½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old Kraft Corrugated Containers	1.50	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17½	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04½	"	.05
Light Silesias	.04½	"	.04¾
Silesias, No. 1	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached	.07¼	"	.07½
Washable Prints	.03¾	"	.03½
Washable No. 1	.02	"	.02¼
Blue Overall	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales	.03¾	"	.03½
New Black Soft	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.	.03	"	.03¼
No. 2 Mixed	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas	.04¾	"	.05¼
New Black Mixed	—	"	.02½

Domestic Rags (Old)

White No. 1 — Repacked	3.80	"	—
White No. 2 — Repacked	2.90	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Sisal Rope	3.75	"	—
Mixed Rope	.75	"	1.00
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old Corrugated Containers	1.00	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	3.75	@	—
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	1.35	"	1.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.75	"	5.25
Jute Carpet Threads	3.25	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.75	"	4.00
Wool Tares—			
Foreign	(nominal)		
Domestic	3.75	"	4.00
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—
Aust. Wool Pouches	4.65	"	4.87½
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Bagging	1.35	"	—*

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¼	"	.05
New White No 1.	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
* Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—